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BULLETIN OF THE HISTORY OF MEDICINE

ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE
AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Editor—HENRY E. SIGERIST

Associate Editor—GENEVIEVE MILLER

VOLUME XVIII DECEMBER, 1945 NUMBER 5

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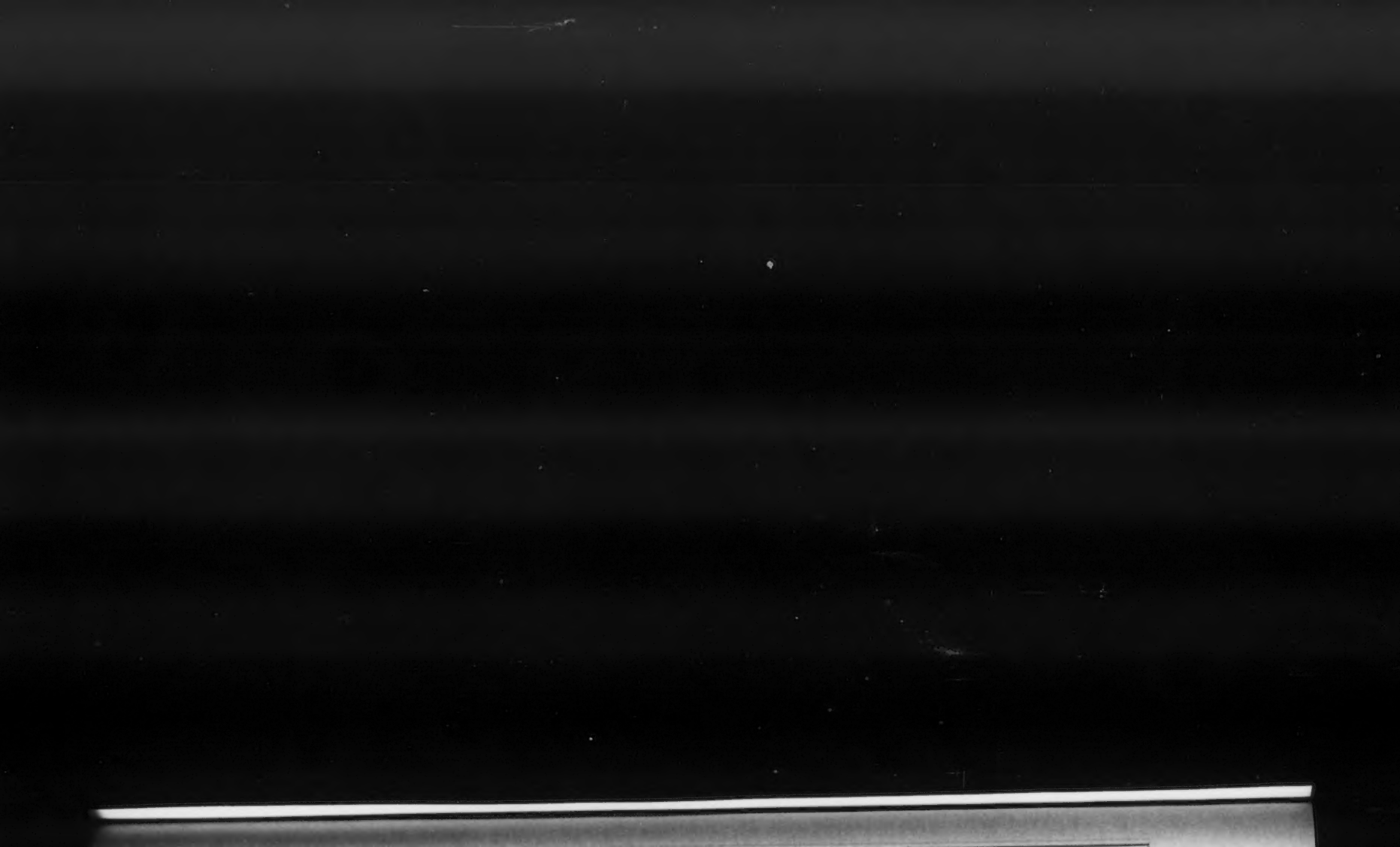

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HISTORY AND PRINCIPLES OF CLASSIFICATION OF NERVOUS DISEASES

A Short History of the Doctrines of Nervous Function Under Pathological Conditions and a General Scheme of Classification of Nervous Diseases According to Function

W. RIESE

ON CLASSIFICATION

A classification is a systematic whole of knowledge and it springs from our need for generalization and order.

But classifications owe their existence also to an *economizing principle* of the human intellect. Indeed, if we were to renounce classifications and deliberately restrict our descriptions and actions to individual experiences, we would not only at the same time renounce science as an articulated whole, thus as a system of experiences, but we would also condemn ourselves to treat every new experience as the first one, not using previous experiences of the same or of an analogous kind. Our intellect would be overburdened by an ever renewed start ab ovo, and increase in knowledge would be at a very slow rate. Since individuals of the same species have very much in common, an analysis of our experiences on exclusively individual grounds would mean endless repetitions and reiterations denounced already by Aristotle.[1]

[1] In his *Parts of Animals.*

Classifications imply, however, a dangerous element. We may indeed ignore or forget their intellectual origin and take the divisions we establish and the species we distinguish for self-sufficient entities, pre-existing as such in nature, independently from our organizing mind. Thus originates what is called an ontologic view of disease and it is this latter which aroused the criticism and scientific revolt of our generation, sometimes inclined to deprive classifications of all their credits. Formulae such as " there is not such a thing as disease," or " there is but a diseased individual," are witnesses of this anti-classificatory attitude. The latter cannot be silenced by admitting of individual variations, of a distinction to be made between constant and casual symptoms, or even of changes of diseases among themselves; these and similar corrective statements were already made by Sydenham. But they cannot compete with the principle which our generation has brought to the foreground again and which aims at a study of each case on its individual grounds. Here is indeed the most vulnerable point in any classification. Since there is an infinite number of individual varieties in life and nature, the rule: Entium varietates non temere esse minuendas, threatens any attempt to neglect varieties in favor of generalization. Only by recalling the function proper to classification can we hope to do justice to the need for individualization on the one hand, and for systematization on the other. It should indeed not be overlooked that *the task of classification is not to give a complete analysis of an individual case, to which it has nothing to contribute, but to arrange a whole of cases irrespective of their individual features.* The individual case can never take rank as a division in a classification. Although there is no rule as to the number of similar cases justifying their arrangement as a species, the rule: entia praeter necessitatem non esse multiplicanda, sets a limit to our classifying effort. Classifications do not only express and satisfy the imperious need for order and system, but they serve also *social* purposes. Classifications are necessary for a preliminary orientation in the labyrinth of facts, for mutual understanding at the bedside of the patient, they are of great instrumental importance for diagnosis, prognosis, therapy and prevention.

During the second half of the nineteenth century neurologists gradually but steadily renounced classification. This is a most significant phenomenon which can only be understood on the ground of the basic scientific pattern of the period. That our era lacks synthesis is indeed the most frequently advanced and the most readily accepted explanation, but it is but half of the truth. As a matter of fact the nineteenth century did not lack broad and general views. The principles of evolution, phylogenesis

and of the all-uniting relationship holding together all organized beings, are samples of such most general principles conceived by the nineteenth century. But what makes the discriminative feature of those and similar views, is that the naturalists of the nineteenth century were convinced that nature itself was the birthplace of these principles they were most anxious to detect outside themselves. They did not realize that nature has nothing to offer but a haphazard collection of unrelated facts and that principles spring from human reason, since, by their generalizations, they reach far beyond what the largest collection of empirical data can ever comprise. The contemporaries thus became dependent on facts as on the only letters of credentials their doctrines could present. Thus started the famous hunting of facts; facts again and again, were called forth, at first to be at the service of the consolidation of principles (the greatest number being declared synonymous with the greatest truth), but finally to become self-sufficient. Since facts are always available in abundance, and since they are confusing when not mastered by a synthetizing intelligence, physicians became discouraged in their attempt to bring order and system into an otherwise chaotic assemblage of facts, and classifications, according to principles, lost much, or all, of their credit.

In readvocating classification as a scientific procedure justified by man's need for system and order, I do not intend to appeal once again to the early nosologists and to revive their way of classifying diseases. Their grouping was made on the model of the naturalists' classifications of animals and plants and based on structural i. e. *spatial* characters, such as the floral organs, according to which Linnaeus arranged all known genera of plants. This eminent botanist believed indeed the relationship between symptoms and disease to be the same as that between leaves, tendrils, and plants: Symptomata se habent ad morbum ut folia et fulcra ad plantam.[2] The fundamental error in Linnaeus' and his followers' classifications of diseases is to be seen in the fact that these nosologists did not realize with sufficient strength that a disease is a chapter of the life history and therefore by its very nature a *chronological* phenomenon, or a sequence of events, and that classification according to spatial criteria can do justice to symptoms, but never to the full picture of diseases. However, one might indeed suggest a classification of diseases as of events, each "species" thus understood to be a chronological and not a spatial entity. But do we really have such chronologically well-defined entities? The description of the true and undisturbed course of the maladies, the

[2] Quoted from *Examen des Doctrines Médicales* par F. J. V. Broussais, Paris, 1829.

combination and sequence of symptoms under natural conditions, was the goal at which Hippocrates among the ancients, Sydenham and Pinel among the moderns, aimed with indefatigable efforts. This is what may be called the *natural history of disease*;[3] it has still to be written for most of them. However, we should never forget that the natural history of diseases will always be but an *ideal scheme*, since there are never two identical groups, combinations or sequences of symptoms, and since there is no event, no change in organized nature with which external factors would not interfere, thus disturbing the intrinsic course of events, reducing and sometimes even eliminating our hope to write the natural history of diseases. Here are the limits of all our attempts to submit natural phenomena to order and law and the unavoidable gaps between nature as a pure state and nature as a rationalized and systematic whole. To those who cherish the romantic illusion of reaching the former and who like to refrain from the latter (as "foreign to life and nature"), the conclusion may be opposed that the most resolute and the most courageous efforts to seize pure nature will never yield more than approximate results. With these restrictions in mind, we might try once again to classify nervous diseases. An attempt will be made at the end of this study to outline a general scheme of classification of nervous diseases according to principles reducing the danger of ontology to its minimum and comprising a maximum of factors determining a given disease. This is the first attempt of the kind in the history of neurology; it requires a pre-examination of previous attempts to classify nervous diseases.

W. Cullen

The doctrine of nervous disease in its actual form is a product of the nineteenth century. As such it is so closely linked with neuroanatomy and neuropathology, that we can hardly imagine a study and classification of nervous disease lacking those two elements. But long before the fundamentals of modern neurology were well known, certain diseases were grouped together as "nervous diseases" or "neuroses." The principle according to which Cullen (1) classified them was a *functional* one. He

[3] The history of diseases, says Baglivi, or the *medicina prima* ought to be distinguished from the curative part, or the *medicina secunda*. The former is a science *sui generis*, and is only to be drawn from the pure and uncorrupted springs of nature; or, to speak more properly, depends upon a plain and accurate description of distempers, as they appear in their beginning, height, increase, declension, and termination, to the diligent observer. (From a note by the translator of *The Entire Works of Dr. Thomas Sydenham*, London, 1769, p. iii.)

defined "neuroses" (2) as conditions in which "sense and motion were injured, without idiopathic pyrexia, and without local disease." [4]

It is true that in a significant and explanatory note, Cullen referred to his great fellow-countryman Thomas Willis to justify his relating neurosis to the central nervous system as to the organ *primarily* involved, and insofar the doctrine of nervous disease is at the time of its birth already a doctrine of diseases of the central nervous system. Since his great Cartesian predecessor must have had a more or less precise conception of the reflex, comprising motion and sensation as its two basic elements (although on a primitive level), Cullen's nosography, to my knowledge the first one of the kind in the history of neurology, is perhaps at the same time the definite one. It anticipates the anatomical and physiological discoveries of the nineteenth century, being a *classification of nervous disease according to a functional principle as to the leading one, related however to a structural principle, as to its corollary.*

Cullen subdivided his neuroses (Fig. 1) into four orders, Comata, Adynamiae, Spasmi and Vesaniae,[5] the principles of this subclassification

[4] This is the definition he gave in his *Synopsis Nosologiae Methodicae.* In his *First Lines of the Practice of Physic,* he proposed "to comprehend under the title of NEUROSES, all those preternatural affections of sense or motion which are without pyrexia, as a part of the primary disease; and all those which do not depend upon a topical affection of the organs, but upon a more general affection of the nervous system, and of those powers of the system upon which sense and motion more especially depend. Of such diseases I have established a class, under the title of NEUROSES or NERVOUS DISEASES. These again I distinguish, as they consist, either in the interruption and debility of the powers of sense and motion, or in the irregularity with which these powers are exercised . . ."

[5] A nosological problem of fundamental importance is involved in his making the "Vesaniae," in which the judgment is impaired, an order of his "neuroses," in which sense and motion are impaired. Cullen did make no comment on the subject, although he must have been aware of his expressing impaired judgment in terms of impaired motion and sensation. More than half a century passed before Hughlings Jackson, facing the same problem, brought it to its solution.

The profound changes the doctrine of nervous function under normal and pathological conditions had to undergo since the days of Cullen, cannot be better illustrated than by paying attention to those diseases we actually consider to be diseases of the nervous system, but which Cullen did not believe to be "neuroses," as well as to those we no longer consider to belong to neurology, but believed by Cullen to be "neuroses." Leaving alone tabes, which he declared to be "Emaciation; loss of strength; hectic fever" and he arranged in the first order (Marcores) of his third class (Cachexiae), ruling out explicitely "any febrile or nervous disease as the primary one," we find Hydrocephalus among his Intumescentiae (second order of his Cachexiae). It might be surprising to see Dysaesthesiae (Depravation or loss of some sense, from a disease of the external organs) and Dyscinesiae (obstructed or depraved motions from disease of the organs) in his class "Locales," defined as "Affection of a part, not of the whole body," in spite of the fact that Dysaesthesiae and Dyscinesiae involve sensation and motion; the reason for

CLAVIS CLASSIUM, ORDINUM ET GENERUM CULLENI.

Class. I.—PYREXIÆ.

Ordo I. *FEBRES.*

§ 1. *Intermittentes.*

1. Tertiana.
2. Quartana.
3. Quotidiana.

§ 2. *Continuæ.*

4. Synocha.
5. Typhus.
6. Synochus.

Ord. II. *PHLEGMASIÆ.*

7. Phlogosis.
8. Ophthalmia.
9. Phrenitis.
10. Cynanche.
11. Pneumonia.
12. Carditis.
13. Peritonitis.
14. Gastris.
15. Enteritis.
16. Hepatitis.
17. Splenitis.
18. Nephritis.
19. Cystitis.
20. Hysteritis.
21. Rheumatismus.
22. Odontalgia.
23. Podagra.
24. Arthropocace.

Ord. III. *EXANTHEMATA.*

25. Variola.
26. Varicella.
27. Rubeola.
28. Scarlatina.
29. Pestis.
30. Erysipelas.
31. Miliaria.
32. Urticaria.
33. Pemphigus.
34. Aphtha.

Ord. IV. *HÆMORRHAGIÆ.*

35. Epistaxis.
36. Hæmoptysis.
37. Hæmorrhois.
38. Menorrhagia.

Ord. V. *PROFLUVIA.*

39. Catarrhus.
40. Dysenteria.

Class. II.—NEUROSES.

Ord. I. *COMATA.*

41. Apoplexia.
42. Paralysis.

Ord. II. *ADYNAMIÆ.*

43. Syncope.
44. Dyspepsia.
45. Hypochondriasis.
46. Chlorosis.

Ord. III. *SPASMI.*

47. Tetanus.
48. Convulsio.
49. Chorea.
50. Raphania.
51. Epilepsia.
52. Palpitatio.
53. Asthma.
54. Dyspnœa.
55. Pertussis.
56. Pyrosis.
57. Colica.
58. Cholera.
59. Diarrhœa.
60. Diabetes.
61. Hysteria.
62. Hydrophobia.

Ord. IV. *VESANIÆ.*

63. Amentia.
64. Melancholia.
65. Mania.
66. Oneirodynia.

Class. III.—CACHEXIÆ.

Ordo I. *MARCORES.*

67. Tabes.
68. Atrophia.

Ord. II. *INTUMESCENTIÆ.*

§ 1. *Adiposæ.*

69. Polysarcia.

§ 2. *Flatulentæ.*

70. Pneumatosis.
71. Tympanites.
72. Physometra.

§ 3. *Aquosæ.*

73. Anasarca.
74. Hydrocephalus.
75. Hydrorachitis.
76. Hydrothorax.
77. Ascites.
78. Hydrometra.
79. Hydrocele.

§ 4. *Solidæ.*

80. Physconia.
81. Rachitis.

Ord. III. *IMPETIGINES.*

82. Scrophula.
83. Syphilis.
84. Scorbutus.
85. Elephantiasis.
86. Lepra.
87. Frambœsia.
88. Trichoma.
89. Icterus.

Class. IV.—LOCALES.

Ordo I. *DYSÆSTHESIÆ.*

90. Caligo.
91. Amaurosis.
92. Dysopia.
93. Pseudoblepsis.
94. Dyscecea.
95. Paracusis.
96. Adcusis.
97. Agheustia.
98. Anæsthesia.

Ord. II. *DYSOREXIÆ.*

§ 1. *Appetitus normalis.*

99. Bulimia.
100. Polydypsia.
101. Pica.
102. Satyriasis.
103. Nymphomania.
104. Nostalgia.

§ 2. *Appetitus deficiens.*

105. Anorexia.
106. Adipsia.
107. Anaphrodisia.

Ord. III. *DYSCINESIÆ.*

108. Aphonia.
109. Mutitas.
110. Paraphonia.
111. Psellismus.
112. Strabismus.
113. Dysphagia.
114. Contractura.

Ord. IV. *APOCENOSES.*

115. Profusio.
116. Ephidrosis.
117. Epiphora.
118. Ptyalismus.
119. Enuresis.
120. Gonorrhœa.

Ord. V. *EPISCHESES.*

121. Obstipatio.
122. Ischuria.
123. Dysuria.
124. Dyspermatismus.
125. Amenorrhœa.

Ord. VI. *TUMORES.*

126. Aneurisma.
127. Varix.
128. Ecchymoma.
129. Scirrhus.
130. Cancer.
131. Bubo.
132. Sarcoma.
133. Verruca.
134. Clavus.
135. Lupia.
136. Ganglion.
137. Hydatis.
138. Hydarthrus.
139. Exostosis.

Ord. VII. *ECTOPIÆ.*

140. Hernia.
141. Prolapsus.
142. Luxatio.

Ord. VIII. *DIALYSES.*

143. Vulnus.
144. Ulcus.
145. Herpes.
146. Tinea.
147. Psora.
148. Fractura.
149. Caries.

Fig. 1

Cullen's Classification of diseases, from his *Synopsis Nosologiae Methodicae*. For the first time a group of diseases ("Neuroses") was delimited, defined and sub-divided according to functional criteria, (i. e. Motion and Sensation). This class of diseases was related to the nervous system.

again being functional ones. In the Comata "the voluntary motions are impaired with sleep or a suspension of sense," in the Adynamiae "the involuntary motions, whether vital or natural, are impaired," in the Spasmi there are "irregular motions of the muscles or muscular fibers," and in the Vesaniae "the judgment is impaired, without pyrexia or coma." Evidently, Cullen did not describe and did not want to describe a newly discovered condition when defining "neuroses"; he rather wanted to give an appropriate name to an already known group of symptoms,[6] to delimit it from other syndromes and to relate it to its structural basis.

Forerunners and Followers of Cullen

Half a century before the publication of Cullen's *Synopsis*, G. Cheyne wrote: "Diseases are chiefly and properly call'd *Nervous*, whose Symptoms imply, that the System of the *Nerves* and their Fibres are evidently relax'd and broken" (*The English Malady or a Treatise of Nervous Diseases of all kinds*, London, 1735). Using the (still somewhat naive and simple) scientific symbols of his time, G. Cheyne, nevertheless, already related a certain group of diseases to the nervous system. He was fully aware of his introducing a solidar-neurology: "In treating of Nervous Distempers, the Disorders of the *Solids* are chiefly what are to be had Regard to . . ." (*l. c.*, p. 14-15). A humoral-neurological element, however, is admitted by the following restricting statement:[7] Nervous Distempers "rarely or never happen alone (except perhaps in those Nervous Disorders that proceed from acute Diseases, preternatural

their being excluded from the "neuroses" is most probably to be seen in the neuroses being conditions "without local disease." On the other hand, diseases such as chlorosis, pertussis, cholera and diabetes appear among the "neuroses" of Cullen.

[6] Cullen's Comata corresponded to the Anepithymiae (class Debilitates) of Sauvages, and to the Comata (class Debilitates) of Sagar, to the Soporosi (class Quietales) of Linnaeus, to the Adynamiae of Vogel, to the Nervorum resolutiones of Hoffmann, to the Affectus soporosi of the same author and to the Motuum vitalium defectus of Junck.-Cullen's Adynamiae are synonymous with the Adynamiae of Vogel, with the Defectivi (class Quietales) of Linnaeus, with the Leipopschyiae (class Debilitates) of Sauvages and with the Leipopsychiae (class Debilitates) of Sagar.—Cullen's Spasmi are to be found among the spasmi of Sauvages, Vogel and Sagar. They are synonymous with the Motorii of Linnaeus, the Morbi spasmodici et convulsivi of Hoffmann, the Spasmi et convulsiones of Junck and Boerhaave's Epilepsia. Finally Cullen's Vesamae are synonymous with Vogel's Paranoiae, Sauvages' Deliria (class Vesaniae), Sagar's Dyscinesiae (class Debilitates) and Linnaeus' Ideales (class Mentales).

[7] Dezeimeris characterized Cheyne's doctrine of nervous function with the following words: ". . . il avait autant égard au mélange des humeurs qu'à la forme des solides, aux mouvements toniques et à l'influence de l'âme" (*Dictionnaire Historique*, Paris, 1836).

Evacuations, external Injuries, or a wrong and unnatural Make and Frame) but even in original Nervous Distempers there is always some Viscidity or Sharpness attending them from the bad Constitution of the Parents, from whom they have derived their material Organs" (*l. c.*). He also developed a doctrine of nervous disease on a uniform ground, and on a physiological one: "All Nervous Distempers whatsoever, from Yawning and Stretching, up to a mortal Fit of an Apoplexy, seems to me to be but one continued Disorder, or the several Steps or Degrees of it, arising from a Relaxation or Weakness, and the Want of a sufficient Force and Elasticity in the Solids in general, and the *Nerves* in particular, in Proportion to the Resistance of the Fluids, in order to carry on the Circulation, remove Obstructions, carry off the Recrements, and make the Secretions." (*L. c.*)

He finally outlined "the Most natural and general Division of nervous Distempers," classifying them into those, "that, besides their other Symptoms, are attended with a partial or total Loss of Sensation for some Time . . ."; (he listed "Apoplexy" among others of this group); "secondly, those Nervous Disorders, which are attended with a Loss of voluntary Motion or Shaking, in any particular Organ or Limb, or in all the Instruments of voluntary Motion" (here he mentioned "Palsy," "Hemiplegia"). The third division comprised "Those Nervous Distempers that are attended with *Spasms*, Cramps, Convulsions, or violent Contractions of the Muscles. Of this kind are all of the *Convulsive* Tribe from *Hypochondriacal* and *Hysterical* Fits, or the Convulsions of the *Epileptick* Kind, down to Yawning and Stretching." (*L. c.*) No doubt, this was already a definite classification of nervous diseases on physiological grounds, and these diseases were already related to the nervous system. Cheyne could as well claim the place given to Cullen in this study; but he did not write a nosography proper.

The same reasoning holds true for Robert Whytt who also adopted a functional principle of classification of nervous diseases which he discussed on the reduced model of motion and sensation: "But how much soever we may be in the dark about the immediate causes of the diseases of the nerves, yet their effects may all be reduced to some change in that sensibility or moving power, which the nerves communicate to the different parts of the body . . .". (*Observations on the Nature, Causes, and Cure of those Disorders which have been commonly called Nervous, Hypochondriac, or Hysteric*, Edinburgh, 1765). He thus distinguished two main groups of nervous diseases, according to their being ascribed to a disturb-

ance of the sentient or the moving power of the nerves; these two main groups were then sub-divided according to increase or decrease in the basic functions of the nerves. The "*sentient power*" is responsible for nervous diseases

> When the feeling of the nerves is too acute;
>
> When either the whole nerves, or part of them, are deprived of a proper degree of sensibility;
>
> When the feeling of the nerves in any of the organs of the body, becomes unnatural or depraved . . .
>
> When any of the nerves lose their power of feeling entirely, the organs, or parts to which they are distributed, become quite insensible . . .

The *moving* power is responsible for nervous diseases when similar conditions prevail:

> A *greater* degree of that *power* in the nerves, which is necessary for motion, can only give more force and steadiness . . .
>
> A *diminution* of the moving *power* of the nerves. . .
>
> A *total* want of this power . . . (here he cites "palsy").

The modern neurologist will identify those different conditions with Hyperaesthesia, Hypaesthesia, Anaesthesia, Paraesthesia and with Hypercinesia, Hypocinesia, Acinesia. Precisely the same classification of nervous disease will be established in the nineteenth century by M. H. Romberg. R. Whytt is well known to the neurophysiologist for his contribution to the reflex concept. Although he repeated in his *Observations* that "There are only two kinds of motion observed in the bodies of living animals, viz. voluntary and involuntary from *stimuli*" (*l. c.*, p. 4), the attempt to make the reflex a principle of classification of nervous diseases was left to Marshall Hall.

The great Pinel must be counted among the numerous followers of Cullen, as far as the doctrine and classification of nervous disease is concerned. As a matter of fact, Pinel translated Cullen's *First Lines* (Paris, 1785) into French. Psychiatry has always claimed Pinel as one of its most eminent sons, whose scientific ideas and actions sprang from the intellectual and moral treasure of the French revolution, no longer tolerating any of its "citoyens," insane or not, to be enchained. But Pinel has also to be given a unique and a leading role in the history of nosography, since he succeeded as nobody before and after him, in combining

successfully generalization with individualization. He was firmly attached to Hippocratic traditions, and the history of the particular case, the influences of seasons, climates, nature of the soil, plant and animal life, food, way of life, physical and moral constitution of the diseased individual, were in the foreground of his entire system. But in spite of his strong feeling for the individual nature of each of the physician's experiences, he saw also the necessity of systematization and classification:

> Cependant on doit reconnaitre la nécessité absolue d'une semblable méthode, afin d'épargner au médecin judicieux l'incertitude et les perplexités; au médecin téméraire un parti pris au hasard, une décision précipitée; au malade le danger d'une méprise. (*Nosographie Philosophique*, Paris, 1807, p. vi.)

He considered disease to be " non un tableau sans cesse mobile, comme un assemblage incohérent d'affections renaissantes qu'il faut sans cesse combattre par des remèdes, mais comme un tout indivisible depuis son début jusqu'à sa terminaison, un ensemble régulier de symptômes caractéristiques et une succession de périodes, avec une tendance de la nature, le plus souvent favorable et quelquefois funeste " (*l. c.*, p. VII/VIII). Broussais accused him of still being too ontological. But I can hardly see that this reproach is justified, since Pinel withstood the danger of taking what he called " espèce " for reality. He was very positive in stating the *logical* nature of the species:

> On entend par *espèce*, en nosographie, une sorte d'idée complexe et abstraite qui résulte du rapprochement des caractères pris de plusieurs histoires particulières d'une même maladie. (*L. c.*, vol. 3, p. 561.)

Although a nosographer, he remained sceptical as to a successful classification of nervous diseases in his time; but he wanted to stay on the firm ground of the *physiological principle*:

> Une méthode naturelle de les classifier est donc inapplicable dans l'état actuel de nos connaissances, même avec le secours de l'analyse, et il faut se borner à une disposition artificielle. Je la fonde sur la base la plus stable et la moins sujette à des variations, les propriétés de la sensibilité et de l'irritabilité, et les fonctions organiques des parties. (*L. c.*, vol. 1, p. xxxviii.)

Not only this makes him a follower of Cullen, but the term " neurosis " and the definition he gave of this group of diseases[8] were continuation and revival of Cullen's work:

> Vésanies, spasmes, convulsions, douleurs, affections comateuses, paralysies, quelle multiplicité, quel contraste de phénomènes, les uns décrits par les auteurs, les

[8] In defining them as " Lésions du sentiment et du mouvement, sans inflammation ni lésion de structure " (*l. c.*, v. III, p. 579) he repeated literally Cullen's definition.

autres observés chaque jour, et qui ne viennent cependant que de deux sources uniques, des lésions du sentiment et du mouvement. (*L. c.*, vol. III, p. 1.)

As to the classification itself, he slightly modified Cullen's system, making the "Comata" the first and the "Vésanies" the second sub-order of his "Névroses des fonctions cérébrales."

Besides this order, he distinguished "Névroses des sens," "Névroses de la Locomotion et de la Voix," "Névroses des Fonctions Nutritives" and "Névroses de la Génération."[9] From the view-point of a modern neurologist, there is much to be desired in his classification and many of Pinel's "espèces" are today recognized as pure syndromes or even only symptoms (such as Diplopie, Catalepsie, Cauchemar, Hydrophobie, Convulsions, Aphonie, Vomissement spasmodique, Dyspepsie, Boulimie, Asphyxie, Palpitations Nerveuses and almost all of his "Névroses de la Génération"). He shared this weakness with the overwhelming majority of the early nosologists; but he shared also with them the merit of having adopted a classification on physiological grounds and he surpassed them by his universal approach towards disease (3).

John Brown

The first attempts to correlate a group of diseases ("neuroses") with the central nervous system still being very general ones, and motion and sensation being but special types of the general principle of life, we will understand that followers of Cullen, generalizing and synthetizing minds, emphasized and over-emphasized this general aspect of the study and the classification of nervous disease; the time had not come as yet to develop

[9] Pinel's first order ("Névroses des Sens") contained none of Cullen's species, his last one ("Névroses de la Génération") only Hystérie which Cullen made one of his "Spasmi." Pinel eliminated Chlorosis and Dyspnoe (both to be found among Cullen's "Adynamiae") from his nosology. Cholera (one of Cullen's Spasmi is treated by Pinel as a "Fièvre gastrique," Diarrhoe one of Cullen's Spasmi) as a "Phlegmasie" (des membranes muqueuses) and Diabetes (one of Cullen's Spasmi) as a "Lésion organique particulière" (des viscères). Epilepsie was shifted from Cullen's Spasmi to Pinel's Comata, Hypochondrie from Cullen's Adynamiae to Pinel's Névroses des Fonctions Cérébrales, Hydrophobia from Cullen's Spasmi to the same order of Pinel, Tetanos and Convulsions from the Spasmi to "Névroses de la Locomotion et de la Voix," Paralysie (together with Chorea, one of Cullen's Spasmi) from Comata also to Névroses de la Locomotion et de la Voix. Five of Pinel's Névroses des Fonctions Nutritives belonged to Cullen's Spasmi (namely Pyrosis, Colique nerveuse, Asthme, Coqueluche and Palpitations nerveuses) two to Cullen's Adynamiae (namely Dyspepsie et Syncope). No better witness could be cited of the uncertitude and wavering of a still very mobile classification of nervous disease at the time of Cullen and Pinel.

the anatomical and physiological elements comprised implicitly in the work of Cullen.

The famous John Brown constructed a whole system of life and disease out of three constituent elements, namely, stimuli, excitability (the property by which the stimuli act) and excitement (the effect of the stimuli acting upon the excitability). Emphasis is laid in this doctrine on the stimulants as on the true exciting powers of life: "Since the general powers produce all the phenomena of life, and the only operation, by which they do so, is stimulant; it, therefore, follows that the whole phaenomena of life, every state and degree of health and disease, also consist in stimulus, and are owing to no other cause." (*The Elements of Medicine*, Philadelphia 1814, p. 8-9.) Both the over-abundance and deficiency of stimulus is productive of diseases, and in *exact* proportion to the over-abundance or deficiency. The debility arising from defect of stimulus is called direct, while that arising from excess of stimulus is called indirect. The only classification of disease is that in sthenic and asthenic: The general diseases, arising from excessive excitement, are called sthenic; those that originate from a deficient excitement, asthenic. Both are always preceded by predisposition. Thus, "the endless variety of general diseases is reduced to two forms, a sthenic and asthenic one, without any other difference but what consists merely in degree" (*l. c.*, p. 41). It is true that J. Brown admitted also "local diseases," or "symptomatic affections, throwing the whole system into disorder, with a certain resemblance to universal diseases" (*l. c.*, p. 41). But it is significant that he devoted to local diseases only the last 20 pages of his *Elements*, while the universal diseases are treated on 160 pages and the principles of his doctrine on 200 pages. Since local diseases are treated as those where no effect arises except in the hurt part, and as those where the effect of the local affection is propagated over the whole body, over the whole nervous system, and finally as those where a general disease degenerates into a local one, one might expect to find that group of diseases which Cullen related to the central nervous system, among the local diseases; that nervous diseases do not appear in this division, follows from the role given to the central nervous system in this doctrine. The latter (defined as the "medullary nervous matter and muscular solid") is believed to be the seat of excitability in the living body. This is indeed the only anatomical element in Brown's doctrine (who warned his readers "never to expect to discover the cause of disease in dead bodies": *l. c.*, p. 42); but it is the one which necessarily makes *his entire pathology a neuro-pathology and his classification of diseases a classification of nervous diseases.* Therefore

a place has to be given to Brownism in the history of the classification of nervous disease. Since Brown believed that the excitability, although inherent in the nervous system, is not different in different parts of its seat (sense, motion, the mental function, and passion being produced immediately, instantaneously and not in a series of successive operation: *l. c.*, p. 22), the road was not open to him to assign to the anatomical element a more precise and more regional role in his study and classification of nervous disease. The whole system is one of the most reduced doctrines of disease ever conceived and it foreshadows attempts of the 19th and 20th centuries to interpret life and disease on the exclusive model of excitation and reaction. A restricted number of fundamental conceptions will always be the ideal of a rational science. Brown even made a definite effort to express vital phenomena in terms of arithmetic, thus reducing still more his already reduced model of life and disease; he thus arrived at numbers and figures as at the last constituent elements of physiology and as a principle of classification of disease. But as a matter of fact, in spite of this apparently rational approach, he neglected integral elements of a truly rational interpretation of life and disease. No place is left in his system for an autonomous principle of life, and the vis medicatrix naturae is explicitly rejected. Life and disease thus become entirely heteronomous and forced phaenomena, as to their existence as well as to their variations, being exclusively dependent on stimuli. Although the directive or autonomous principle of life is but a principle of interpretation and can neither be made a subject of empirical research nor a principle of classification, it should not be ignored in any doctrine of disease. The second rational and Hippocratic element lacking in Brownism is the *historical* feature of disease. The complete absence of any systematic study or classification of disease according to stages is responsible for the author's failure to make a fundamental distinction between predisposition and disease, admitting only of a difference in degree between both of them. He did not realize that predisposition is a *state*, while disease is an *event*. This historical and evolutionary nature of disease separates it fundamentally and not gradually from predisposition (4).

Erasmus Darwin

In his *Zoonomia* (or *Laws of Organic Life*, 1794) E. Darwin whose work, in the final analysis, sprang from Brownism, divided all diseases in four classes:

I. Diseases of Irritation,
II. Diseases of Sensation,
III. Diseases of Volition,
IV. Diseases of Association.

All of these four faculties are as many distinct powers of the " sensorium." " All diseases originate in the exuberance, deficiency, or retrograde action of the faculties of the sensorium, as their proximate cause: and consist in the disordered motions of the fibers of the body, as the proximate effect of the exertions of those disordered faculties."

Sensation and volition are " movements of the sensorium in contrary directions; that is, that volition begins at the central parts of it, and proceeds to the extremities; and that sensation begins at the extremities and proceeds to the central parts " (*Zoonomia*, I, Boston, 1809, p. 39). Both irritation and association are changes of the extreme parts of the sensorium residing in the muscles or organs of sense, association being " those animal movements, that have once occurred in succession, or in combination, and having afterwards the tendency to succeed or accompany each other " (*l. c.*, p. 41). The " sensorium " is meant " to express not only the medullary part of the brain, spinal marrow, nerves, organs of sense and of the muscles; but also at the same time that living principle, or spirit of animation, which resides throughout the body, without being cognizable to our senses, except by its effects " (*l. c.*, p. 5).

Much confusion must result from the double use E. Darwin made of his " sensorium," to designate the central structure and its distant ramifications as well as the living principle. This amphibolic use of the term was not to the benefit of his doctrine and its accuracy.[10]

[10] Erasmus Darwin's *Zoonomia* appeared in 1794. In 1796 S. Th. Soemmerring published his *Organ of the Soul* in which he reaffirmed the opinion previously expressed in his *Neurology* that the sensorium commune could not be left to a solid part of the brain. Sensation being intrinsically different from movement (proper to the nerve) and thus requiring a different structure, and the walls of the cerebral cavities being the region where all of the nerves end and become connected with one another by means of the liquor, this liquor was believed by the famous anatomist to be the seat of the " soul." Soemmerring submitted his work to two of his greatest contemporaries, Goethe and Kant. Both answered in detail, Kant's letter dealt with the problem involved in such a manner, that this letter became an integral part of his entire work and most welcome to those who were anxious to learn the philosopher's view about the famous doctrine of the seat of the soul and its manifold variations. It is significant and witness of the truly philosophical and enlightened attitude of the time, that Goethe as well as Kant, independently from one another, welcomed the anatomical contributions of the author but both blamed Soemmerring for having introduced the " soul," i. e., metaphysics into a problem which is not open to any other than a physiological solution.

The four different faculties of the animal sensorium are at the time of their exertions called "*sensorial motions*" and as such they express the change occurring in the sensorium when passing from a state of insensibility or inaction to a state of sensibility or exertion (change including motion). The sensorial motions are supposed to be changes or motions of the spirit of animation peculiar to life. They are distinguished from "*fibrous motions*," including the motions of the muscles and organs of sense; these are "probably simple contractions." Four classes of fibrous motions are distinguished according to their being due to irritation, sensation, volition and association. It is obvious that in this doctrine the term motion is used to designate two very different phenomena, although the author made an effort to avoid confusion by the epitheta "sensorial" and "fibrous." Since all of the four faculties of the animal sensorium (when in their active state) result in fibrous motions, the latter ones become a rather universal phenomenon and quasi synonymous with actual life. Thus motion is no longer a *special* vital manifestation which we are inclined to relate to the central nervous system as to its selective structural basis in living beings endowed with a central nervous system. *J. Brown in making excitability a basic element of life and in relating it to the central nervous system, made all diseases diseases of the central nervous system (5); E. Darwin in expressing all vital manifestations and all diseases in terms of motions (6), made all diseases nervous diseases*, although he treated the latter ones separately, as species, in each of his four classes.

Brownism, although very popular at a given period of the history of medicine, did not survive; nor did Erasmus Darwin's *Zoonomia*. But in the works of both these authors problems of greatest importance are raised. Only in our time do these problems come again to the foreground. The fundamental difficulty involved is: How to delimit the functions of the central nervous system (under normal and pathological conditions) from animal life as such? Since an organogenic factor or a "principle of animation" (E. Darwin) must be conceived as present to all of the parts of a living being (unless we admit of unorganized products within organized beings), some will insist on this all-pervading character of life; others will look at the nervous system as at the seat of this principle.

We look at motility and sensibility not only as on general characters of life, but also as on functions of the central nervous system. We feel entitled to do so, because we have reason to believe that in a multicellular organism there is a division of work. Here is the critical point where the physiology and pathology of the organs merge into general biology, all

of the functions of the various structures and organs being but specialized and differentiated manifestations of that same animal life.

Only by recalling permanently to our attention this very general background of the physiology and pathology of organs can we escape rigid and dogmatic localization of vital manifestations in their presumably exclusive sites. And only by recalling permanently the differentiated types of life which we have to deal with in highly evolved organisms, can we escape too vague and too universal an approach, admitting no more of disease as of a vital manifestation related to a given organ or system of organs and susceptible of classification.

M. H. Romberg

M. H. Romberg's *Lehrbuch der Nervenkrankheiten des Menschen* appeared 10 years after Ch. Bell's *Nervous System*, in which the latter declared any attempt to classify nervous diseases as premature. Romberg called his own textbook "the result of a 20 years effort." Although he did not deny its many deficiencies and lacunes and although he wanted it to be looked on as an "intermediate stage leading to more perfect works"; he nevertheless declared its basic fundament to be unshakeable namely "the physiological principle based on the invariable in the animal species; major changes having no power on it, it shares with all that is good and great in science the privilege of having in it the germ of perfection." [11] His textbook was aimed at contributing to the emancipation "of medicine from the impeding barriers of a learned technique." The first edition appeared in 1840 (A. Hirschwald, Berlin). In his second edition (1851) he complained that "the majority was attracted by the tendency to establish medicine as a science exclusively by pathologic anatomy and chemistry." Since he adopted the physiological principle as the basic principle of nervous function under normal and pathological conditions, he was bound to classify nervous diseases according to disordered sensation and disordered motion, calling them "neuroses," thus keeping alive (although not mentioning) Cullen's pioneer work. The two great classes of sensory and motor neuroses were divided into subgroups (fig. 2) according to

[11] Hat sie auch nach meiner Überzeugung, viele Mängel und Lücken, wird man sie auch nur als Übergangsstufe zu vollkommneren Werken betrachten, so bleibt doch ihre Grundlage unerschütterlich, *das physiologische Princip*, das auf dem Unveränderlichen im Thiergeschlechte basiert, über grössere Schwankungen erhaben ist, und mit allem Guten und Grossen in der Wissenschaft den Vorzug theilt, in sich den Keim höherer Vollendung zu tragen." (*Lehrbuch*, 1857, p. vi.)

INHALT.

Erste Klasse der Nervenkrankheiten.

Sensibilität-Neurosen 3

Erste Abtheilung: **Hyperästhesien** 8

Erste Ordnung. Hyperästhesien von Erregung der Nervenbahnen.

I. Hyperästhesie der Hautnerven 22

Neuralgia N. Quinti. (Dolor faciei Fothergill, Prosopalgia, Tic douloureux, Gesichtsschmerz) 37

Neuralgia ciliaris 68

Neuralgien des Schenkelgeflechts 70

Neuralgia ischiadica. (Ischias nervosa postica Cotunnii, Hüftweh.) 71

Neuralgia cruralis (Ischias nervosa antica Cotunnii.) 85

Neuralgien des Armgeflechts 95

Cervical- und Intercostal-Neuralgien 96

Pruritus, Formicatio 102

Ardor und Algor 105

II. Hyperästhesie der Muskelgefühlsnerven 107

Vertigo, Schwindel 110

III. Hyperästhesien des Nervus vagus 124

Neuralgie der respiratorischen und gastrischen Bahn des Vagus 124

Gastrodynia neuralgica 126

IV. Hyperästhesien der Sinnesnerven (Hyperaesthesiae sensuales 133

Hyperaesthesia optica 134

Fig. 2

First page of M. H. Romberg's Classification of Nervous Diseases, from his *Lehrbuch*, Berlin, 1851, A show-piece of a classification of Nervous Diseases on physiological grounds. The two main classes (of "Sensibilitaets-" and Motilitaetsneurosen") were subdivided according to quantitative criteria and the thus established "orders" again classified according to levels involved.

increased or decreased sensory and motor function. He thus established Hyperaesthesias and Anaesthesias as the two subdivisions of sensory neuroses and Hyperkineses (Spasms) and Akineses (Paralyses) as the two subdivisions of motor neuroses. So far, the principle of classification remained an exclusively functional one. The divisions described were finally divided into "orders," according to regional criteria and to affections of the nerves and the central mechanisms.

Here, then, for the first time since the days of W. Cullen, appeared a true nosology of nervous diseases according to motion and sensation related to the nervous system. Cullen's classification still had the mark and even the (now forgotten) terminology of his predecessors, and function was more proclaimed than developed as a principle of classification. Motion was given an all-important place and sensation did not share equal rights with motion as a criterium of grouping in Cullen's nosology. The relationship of both motion and sensation to the nervous structures was still vague and a mere postulate. Romberg's classification was the first result of modern thought, it was strictly logical and consequent in making disordered motion and sensation two great classes of nervous diseases, each of which divided according to quantitative criteria (which will always remain ideal criteria in a rational science of nature), and was finally subdivided according to the great divisions of the nervous system. In making disturbed motion and sensation two *separate* criteria of classification and in sub-classifying according to increase or decrease in nervous function, Romberg was a legitimate follower of R. Whytt's work (although, again, he did not seem to be aware of his role as a renovator of a British tradition). His topic sub-classification was still a very broad one, the author being sceptical as to regional diagnosis and localization.[12] The number of types we actually distinguish in the doctrine of nervous diseases, was still very small, but those known to him were given their right place in Romberg's classification, appearing as particular instances and not as groups. Many of Romberg's species have indeed lost their credit, and neither pathological nor etiological criteria of grouping were admitted. But he was right in claiming the imperishable value of the physiological principle he adopted as a principle of classification of nervous diseases.

[12] "Unter den pathologischen Beobachtungen, die auf die Topik der Centralfaserung einiges Licht werfen, and die Diagnose des Sitzes der Krankheit vorbereiten können, wird man nur denjenigen Vertrauen zuwenden, welche sich durch enge Schranken der Lähmung und der Desorganisation, durch langes unverändertes Bestehen, durch Mangel an Complication und durch Übereinstimmung beim Vergleiche mit analogen Fällen auszeichnen" (*Lehrbuch*, 1857, p. 941).

Marshall Hall

Motion and sensation as well as their disturbances were related to the nervous system a long time before the basic mechanisms of the latter and the structural elements underlying these basic mechanisms were analyzed. In its early stage classification of nervous disease being primarily a functional one, the only anatomical element in this classification was the correlation of disordered motion and sensation with the central nervous system as a whole. The *regional* or topic element made its first appearance with Marshall Hall. He divided the central nervous system (fig. 3) into the cerebral, or that of sensation and volition, and the true spinal or that of the movements of ingestion and egestion.[13] The principle of action in the cerebral system is the immortal soul, the principle of action in the true spinal system is the vis nervosa of Haller.[14] The latter is always and essentially excited in its origin and reflex in its direction and form; the individual is unconscious of it.

For the first time in the history of neurology the concept of the reflex arc was adopted as a basic mechanism of nervous disease and this makes Marshall Hall the father of modern neurology, although as a neurophysiologist he had his predecessors (Robert Whytt and others). He also related the reflex arc to its structural basis, namely to a system of incident, and reflex nerves, connected with the true spinal marrow as their centre.[15]

[13] The ganglionic nervous system or that of the movements of the internal muscular organs, of nutrition, secretion etc. will not be considered here. Nor shall I deal with Marshall Hall's *Diseases of the Nervous System of Remote Origin*, due to the involvement of the nervous system secondary to that of other organs or extrinsic factors. Generally speaking, previous generations and still the writers of the first half of the nineteenth century insisted with much more vigor on the consensus; failure to realize and to evaluate its importance, was one of the determining factors in Broussais' anti-classifactory attitude.

[14] The vis nervosa acting however in other modes, very different from those assigned to it by Haller and others, one newly discovered mode being its acting upwards as well as downwards in the spinal marrow.

[15] The fundamental discovery of the motor function of the ventral roots and of the sensory function of the dorsal roots is attributed to Magendie and to Bell. The story of Bell's share in this discovery and his frequent change in opinion has been told recently by J. M. Olmsted (*Bull. Hist. Med.* *14*: 341-351, 1943). Bell published in his *Nervous System of the Human Body* (Washington, 1833) an "Appendix Containing Cases and Letters of Consultation on Nervous Diseases." Although the road was open to our author to classify nervous diseases according to motion and sensation *now related to distinct structures of the central nervous system*, he did not believe that the time had arrived as yet to make such an attempt:

"Systematic authors, possessing the highest talents for investigation of disease, and great learning, have, notwithstanding, run into much confusion on the disorders of the

Division of the Nervous System.

I. *The Cerebral System,*	1. *The Cerebrum,* 2. *The Cerebellum,* 3. *The Nerves of Special Sense,* 1. *The Olfactory,* 2. *The Optic,* 3. *The Acoustic; &c.*	*In-excitor, but Motor through* 1. *Volition,* 2 *Emotion.*
II. *The Spinal System,*	1. *The Tubercula Quadrigemina,* 2. *The Medulla Oblongata et Spinalis,* 3. *The Esodic Nerves,* 1. *The Trifacial,* 2. *The Pneumogastric,* 3. *The Spinal*[1]*;* 4. *The Exodic Nerves,* 1. *The Facial,* 2. *The Pneumogastric,* 3. *The Intercostal,* 4. *The Diaphragmatic,* 5. *The Abdominal,* 6. *The Sphincteric, &c.*	*Excitor and Diastaltic, through Stimulus.*
III. *The Ganglionic System,*	1. *The Spinal Centre;* 2. *The Intra-Spinal Ganglionic System;* 3. *The Extra-Spinal Ganglionic System;* 4. *The Arterio-Ganglionic System;* 5. *The Intra-Visceral Ganglionic System*[*].	1. *Peristaltic,* 2. *Secretory.*

[*] This last generalization is the result of the splendid discoveries of Dr. Robert Lee. the most important, in *Anatomy*, of the present century, as the first to display the *intra-visceral ganglia.*

Fig. 3

Marshall Hall's Division of the Nervous System, from his *Diastaltic Nervous System*, London, 1850.

A very generous interpretation has to be given to Marshall Hall's reflex action as proper to the true spinal or "diastaltic" nervous system. Indeed by statements such as: "I believe that no spot of the diastaltic system can be excited without telling upon *every* other" (*Synopsis of the Diastaltic Nervous System*, London, 1850, p. 12), "The entire system is in a state of static tension, *each* part being in strict relation with *every* other" (*l. c.*, p. 12), Marshall Hall came very near to modern concepts and to what is generally called the holistic approach. But the reflex arc remained his basic principle. The latter leads immediately to a classification of the diseases of the true spinal or excito-motory system (representing "the whole class of spasmodic diseases") into those of

1. Incident,
2. Centric, and
3. Reflex origin.

A table of the pathology of the true spinal system could thus be established (fig. 4).

It remains to be explained why Marshall Hall did not make a similar subdivision of the diseases of the cerebral system and why he failed to classify them according to his basic principle. Had he adopted his basic mechanism (the reflex arc) as a general and not as a selective principle of classification, he would indeed have given the most simple and the most rational although a reduced scheme of classification of nervous disease according to one principle and to one alone. As a matter of fact he divided the diseases of the cerebral system into encephalitis, congestion and hemorrhage, mania and diseases resembling it and diseases of the cerebral nerves. This division obviously lacks a uniform principle of classification. The explanation of his failure to adopt such a principle for

nerves. Nor can this surprise any one who considers the imperfect notions that prevailed on the nervous system: the obscurity regarding the different systems of the nerves, and the variety of the functions that were indiscriminately given to the branches from whatever root derived.

The author has attempted no system; there are here accurate reports only. The facts stand isolated and abrupt, because noted at intervals. It will be long, he apprehends, before the united labors of the profession can enable the medical author to arrange the diseases of the nerves, and to describe them accurately: we are obviously in a very early stage of the inquiry."

Similarly, Brown-Séquard refrained from any classification, although he made most valuable contributions to the symptomatology of the nervous system on experimental as well as clinical grounds (see his *Experimental Researches Applied to Physiology and Pathology*, New York, 1853; *Course of Lectures on the Physiology and Pathology of the Central Nervous System*, Philadelphia, 1860).

TABLE OF THE PATHOLOGY OF THE TRUE SPINAL SYSTEM.

I. *Diseases of the Incident Nerves.*

I. 1. *Dental* } *Irritation* } 1. *The Crowing Inspiration.*
2. *Gastric* } *in* } 2. *Strabismus, Spasm of the Fingers and Toes; Strangury: Tenesmus; &c.*
3. *Intestinal* } *Infants.* } 3. *Convulsion.*
4. *Paralysis?*

II. 1. *Gastric* } *Irritation* } I. *Hysteria.*
2. *Intestinal* } *in* } II. *Asthma.*
3. *Uterine* } *Adults.* } III. *Vomiting; Hiccup; &c.*
IV. *Epilepsy.*
V. *Puerperal Convulsion; &c.*

III. *Traumatic Tetanus; Hydrophobia; &c.*

II. *Diseases of the Spinal Marrow itself.*

I. *Inflammation and other Diseases.*

II. *Diseases of the Vertebræ and Membranes.*

III. *Counter-pressure, &c. in Diseases within the Cranium.*

IV. *Centric Epilepsy, Tetanus, &c.*

V. *Convulsions from Loss of Blood; &c.*

III. *Diseases of the Reflex or Motor Nerves.*

I. *Spasm.* **II.** *Paralysis.*

1. *Spasmodic Tic.*
2. *Torticollis.*
3. *Contracted Limbs; &c.*

Fig. 4

Marshall Hall's Table of the Pathology of the True Spinal System from his *Diseases and Derangements of the Nervous System*, London, 1841. The reflex arc was adopted as a principle of classification.

all of the diseases of the central nervous system is to be seen in the fact that Marshall Hall could not liberate himself from the inheritance of the doctrine of the seat of the soul; he saw this soul "enthroned" on the cerebral system. He thus designated sensation, perception, judgment, volition, voluntary motion as *psychical* functions. It is true that he divided the cerebral system into

1. sentient nerves, leading to the posterior roots of the trifacial and spinal nerves, and the posterior columns of the spinal marrow,
2. the cerebrum, the centre of the system,
3. the voluntary nerves issuing from the anterior columns of the spinal marrow and the anterior roots of the trifacial and spinal nerves.

(*Diseases and Derangements of the Nervous System, London,* 1841, p. 23.)

This *anatomical* division obviously recalls the reflex arc: but he endowed the cerebral system with *functions* fundamentally different from those of the true spinal system. Of every step of the operation performed by the cerebral system, the individual is perfectly conscious. The acts of the soul are spontaneous. The cerebral system is the system "by which we are connected *intellectually* with the external world. It is that by means of which we feel and perceive external objects, and by which we approach them and appropriate them to our use exteriorly" (*Diseases and Derangements*, p. 18).

Thus Marshall Hall could not avoid adopting two heterogeneous principles of interpretation for the pathology of the nervous system:[16] an anatomico-physiological for the diseases of the spinal cord, and a psychological for those of the cerebral system. As long as he dealt with the first he could relate its three constituent elements to the nervous system. But in passing to the "soul" and to the "psychic functions," he lost his ground for a classification of nervous disease according to this basic mechanism and to its regional variations. This makes Marshall Hall

[16] The fundamental difference in function between the true spinal system and the rest of the central nervous system was also expressed by Marshall Hall's suggestion to call the motor power and function of the true spinal system "Kinesis"; the absence of this property in the cerebrum and cerebellum (as well as in the olfactory, the optic, the acoustic nerves etc,) would make these structures "akinetic" (*Dis. and Der.*, note, p. xvi.

belong to two ages, in this somewhat similar to Claude Bernard [17] who never denied his vitalistic heritage, although he was anxious to express all of the vital phenomena in physico-chemical terms. With Marshall Hall the soul entered for the first, but also for the last time, into the classification of nervous diseases. (7)

Hughlings Jackson

The time factor was already obvious in Marshall Hall's classification of nervous disease, since he treated the latter according to life periods (the diseases of the nervous system in infants and children being the subject of chapter V, diseases of the nervous system in adult age that of Chapter VII of his *Diseases and Derangements of the Nervous System*, 1841). The time factor was kept alive by his great follower, Hughlings Jackson. This most eminent clinician assigned even to the chronological element a leading role by studying nervous disease in the light of the doctrine of *evolution*. But although he felt: "We have multitudes of facts, but we require, as they accumulate, organizations of them into higher knowledge; we require generalizations and working hypotheses," he did not advocate the application of the doctrine of evolution to the classification of diseases for practical purposes, but he believed, nevertheless, "that its indirect value to clinical medicine is very great indeed, and that before long it will be directly helpful. Thinking that for clinical purposes we must continue to have arrangements of cases 'by type.'".[18]

He did use one of the principles comprised in the doctrine of evolution as "a means of scientific classification and a greater guide to the discovery of new facts." This principle is to be seen in the statement that the evolutionary method deals not only with the local lesion—with that, which disease (in the strict sense of pathological change) causes—which alone is dissolution, but also with the healthy rest; that is, it takes into account the evolution going on in the undamaged remainder of the nervous system. He thus arrived at a classification of nervous diseases according to positive and negative signs. The latter ones require no further comment, they are the deficiencies a diseased individual may reveal according to the level destroyed; they have always been in the foreground of clinical study. They can be described in terms of paralysis, sensory or motor, or both.

[17] See W. Riese: "Claude Bernard in the Light of Modern Science." *Bull. Hist. Med.* *14*: 281-294, 1943.

[18] "On the Comparative Study of Diseases of the Nervous System." *The Medical Record*, 36: 225-232, 1889.

Positive signs, due to the activity or uncontrolled activity of the remaining and spared parts, can best be illustrated by "erratic movements," i. e. tremor, choreatic movements, convulsions, the recurrent utterances of speechless men, the erroneous words uttered by those who have defect of speech and even the illusions of the insane.

A rational and uniform principle of classification of nervous disease is comprised in the Jacksonian statement that the doctrine of evolution implies that the whole nervous system has a sensori-motor constitution (l. c.), and that subsequently, negative lesions of every part of it produce paralysis, sensory or motor, or both, and nothing whatever else. Disregarding the states of consciousness *as such* ("letting them go along by themselves") he urges that their anatomical substrata, the highest centres, represent all parts of the body, "literally all parts supplied by nerves—not only sensory regions and muscles of such parts as eyes and hands ("organs of special sense"), but of legs and arms, of internal viscera, of external viscera (as sweat glands), and all the rest. Under the head of movements one takes in effects produced in glands by what the physiologist calls their motor nerves; and also negative movements so to call them, that is, effects on musculatures produced through the intermedia of inhibitory nerves. The highest centres are centres of universal representation or coordination." He thus studied coma as a state of universal motionlessness, dementia as a lack of all those complex movements representing the physical aspect of conduct. In declaring that . . . "it is not necessarily meant that *actual* movement occurs" and in appealing to "nascent" or "ideal" movements while thinking of an object, he very definitely anticipated views held many years later by Henri Bergson on philosophical grounds. His fundamental and hitherto unique approach consisted in the fact that here a successful attempt was made to interpret nervous disease, inclusive of mental change, in terms of motion and sensation alone, these two mechanisms being the two basic functions of the central nervous system.

H. Jackson considered this study of brain disease according to function to be only one aspect of the threefold clinical problem, the two other divisions being the anatomical (seat of the lesion) and the pathological one (disorder of the nutritive process, nature of the lesion). He cherished the idea of a future classification of nervous disease in which the level would be adopted as the principle of classification, the level being understood to have an anatomico-physiological meaning. What he was striving for, was a "rational formula" of cases belonging to the same level and "a nomenclature analogous to that in chemistry telling us in the name of this or that patient's disease, the several particular elements of the . . .

level morbidly affected, and declaring what other symptoms in this or that case are owing to lesion of extrinsic elements of . . . the level." [19]

When compared with his predecessor, Marshall Hall, one of the greatest steps forward which was achieved by Hughlings Jackson is to be seen in his statement that each level of the central nervous system has the same function, namely representation or coordination. One might be inclined to consider Marshall Hall's distinction between diseases of the cerebral system and those of the true spinal marrow as an anticipation of Hughlings Jackson's classification of nervous disease according to levels, and Hughlings Jackson believed indeed his low level (spinal cord, medulla oblongata and pons) to be what Marshall Hall called the true spinal marrow. But Marshall Hall assigned to his cerebral system and to his true spinal marrow two very different functions, while Hughlings Jackson adopted a basic scheme of nervous function common to all of the levels of the central nervous system as a uniform principle of classification.[20]

Charcot [21]

Although Charcot did not consider himself a "nosographer," he cannot be left out of this study because of his *universal approach towards nervous disease*, which made him the greatest clinician of his time on the European continent, and *which will always remain the only satisfactory basis of any future classification of nervous disease*. As a true clinician he was not concerned with "the abstract picture" of diseases, but rather with "individual cases which almost always present themselves with peculiarities that separate them more or less from the common type." The

[19] "Remarks on the Diagnosis and Treatment of Diseases of the Brain." *The British Med. Journ.*, vol. II for 1888, 59-63; 111-117.

[20] That "all nerve-centers must have a *common* property and *similar* functions," was also the view of G. H. Lewes ("Sensation in the Spinal Cord." *Nature*, X, 83/84; 1874): "The principle which I endeavoured some years ago to get recognized as the directive principle of research in Nerve Physiology, was that everywhere identity of tissue carried with it identity of physiological property, and that similarity in the structure and connections of organs involved corresponding similarity in function." The reader will however realize that Lewes derived the uniformity of nervous function from the uniformity of nervous structure. This implies the law of the specific energies of the nerves. Whatever may be the truth of this law, in my study the physiological principle is given its autonomic role, which owes nothing to anatomy, although it does not contradict anatomy.

[21] *Clinical Lectures on Diseases of the Nervous System.* London, 1889.—*Clinical Lectures of the Diseases of Old Age.* New York, 1881.—*Lectures on Localization in Diseases of the Brain.* New York, 1878.

subject of his teaching was not only the "ordinary type," but its "deviations and unexpected combinations." He thus did justice to an existing entity, a "disease which takes rank apart, self-dependent," but at the same time he did not want "to neglect purposely anomalies or relegate them to the background." In defining tabes as a condition "evolved with an array of symptoms following each upon the other in a determinate order, which is always, or nearly always the same," he recognized one of the fundamental elements of disease, namely its evolutionary nature. Another chronological element in his doctrine is to be seen in his treating diseases according to life periods, and he was the first and he is still among the very few clinicians who stressed the special characteristics which the same disease shows at various periods of life (old age). Furthermore he treated nervous diseases according to stages, herein not satisfied with the rough distinction between acute and chronic conditions, but endeavouring to establish principal periods (such as *e. g.* the prodromic period or period of lightening pains in tabes, the period of established disease or period of motor incoordination and the paralytic period of the same disease). He completed this study by regional diagnosis or localization (given into the hands of the clinician, when trained in neuroanatomy and neurophysiology, "the conditions of an experiment taking place spontaneously"), and finally by the consideration of the genesis and nature of the morbid process.[22]

Charcot was deeply impressed with the actual and future resources of pathologic anatomy and he wanted to keep alive the tradition of his great fellow-countrymen Laennec and Cruveilhier. He saw pathologic his-

[22] His classification of the amyotrophies may be cited as a show piece of his universal approach in nosography. He divided them into two great classes according to the primary seat of the lesion (whether in the spinal cord or in the muscles) thus adopting the *regional* element as the leading principle of classification. Spinal amyotrophies may be deuteropathic when the lesion of the gray substance is secondary, or protopathic when the lesion of the gray substance is the only feature or at least the primary and fundamental one. He then proceeded to a subdivision of the primary myopathy into its clinical varieties, distinguishing the pseudo-hypertrophic paralysis or myosclerosis of Duchenne (de Boulogne), the juvenile form of progressive muscular atrophy of Erb, the hereditary variety or progressive muscular atrophy of Leyden. The nosological criteria he adopted in distinguishing these types from one another were those of the *life periods* in which the various types occur, the *stages* they show in the course of their evolution, the regional distribution of the atrophies, the sequence of their appearance and the *etiological* factors involved. Finally in considering the mixed or transitional forms, the different varieties were again grouped together under the heading of primary progressive myopathy; this he believed to be one great class, one morbid entity, the ratio cognoscendi of which he obviously derived from *pathologic anatomy* which thus held the chief position in his nosography.

tology furnishing "new means of diagnosis, new nosological characteristics," "unveiling the hidden reason of anatomo-pathological forms, recorded and classified by microscopy" and "affixing a more lasting and scientific characteristic to them," but, again, he stressed the chronological element of disease by suggesting the study of the "natural history of lesions." He certainly did not give an all-importance to pathologic anatomy and he certainly never did sacrifice his universal approach. But the way in which he adopted the principle of localization of nervous function foreshadowed already future developments, its misuse and that overstressing of the topic element in nervous disease which provoked criticism and the review of the whole doctrine of localization in our time. We saw that Hughlings Jackson did not neglect the regional or local element in his doctrine of nervous function. But since he adopted a uniform principle of nervous function ("representation," or "coordination"), he did not expose himself to the danger of assigning special functions to topic centres and residences. Charcot, discussing verbal amnesia, admitted that "there is suppression of a whole group of memories, or a whole category of commemorative images, without participation of other groups or other categories"; that "the different groups of memories have their seat in certain circumscribed regions of the encephalon" and that "the hemispheres of the brain consist of a number of differentiated "organs," each of which possesses its proper function, though each one remains in the most intimate connection with the others." Here again the doctrine of localization shows its close relationship to the doctrine of the seat of the soul, the former being indeed nothing but a revival of the latter, after decomposition of the soul into what was called "psychic functions" in the nineteenth century.

The Contemporaries

In a short but unusually enlightening paper entitled *Some Principles of Neurology*, published in 1918 by Henry Head, we find the following passage:

> The English school has always been essentially physiological, from the days of Marshall Hall onwards; but this growing attention to function is mainly due to the teaching of Hughlings Jackson. He sprang from the physiologists of the middle of the last century, and was deeply imbued with the principle of evolution, not only of structure, but of function. But his contemporaries became increasingly obsessed with the study of anatomical and topographical details. (*Brain*, *41*: 344-354, 1918.)

In his monumental work on *Aphasia* (1926) the same author made a similar statement, but this time pointing specifically to classification:

> Neurology has become frozen stiffly in the grip of pseudometaphorical classifications which neither explain the conditions nor correspond to the clinical facts. The dangers of such false classification were recognized by Jackson in 1878. "We must not," he said, "classify on a mixed method of anatomy, physiology and psychology, any more than we would classify plants on a mixed, general, and empirical method as exogens, kitchen herbs, graminaceae and shrubs." Thus, by an irony of fortune the advance of knowledge, in other than neurological fields, has resulted in attainment of a position in many ways corresponding closely with that held by Jackson more than forty years ago. (*L. c.*, vol. 1, p. 31.)

In 1945 the situation is still the same. A glance at our textbooks or a visit to our class-rooms will convince the reader that the common feature of our actual classifications of nervous disease is the *total lack of a uniform principle of classification and of any classification of nervous disease according to function.*

As a matter of fact, true classifications have almost completely disappeared. There was a time, at the end of the nineteenth and the beginning of this century, when nervous diseases were still presented in "Clinical Lectures." The contemporary fashion favors the form of as many separate "chapters" and "parts" as there are, according to the opinion of their authors, well-defined groups of nervous diseases. But these chapters do not constitute a systematic whole, some of their titles implying etiological, others regional, others symptomatological and still others pathological criteria. A tendency towards regional or pathological criteria as the leading criteria of grouping, is obvious. As a rule, nervous diseases are grouped together not according to criteria proper to disease, i. e., criteria of nervous function, but according to the neuro-anatomical divisions of the central nervous system. Then they are sub-divided according to an admixture of etiological and pathological criteria, mingled with well-known types having names of their own or of their discoverers. There are contemporary textbooks and manuals of nervous disease, in which the titles of the various chapters could as well be the titles in a textbook of neuro-anatomy. The result is, that neurology which started as "nervous disease," has become more and more "diseases of the central nervous system," "disease" now understood to be a histopathological condition. Disordered function, the life line of any true doctrine of diseases, is no more an all-pervading and grouping criterium; at the best it is treated in an introductory chapter, at the same level with methods of examination.[23]

[23] The same holds true for our textbooks of Physiology of the Nervous System, even

Nowhere is there any planned and comprehensive order or hierarchy admitting of gradual steps the student would be encouraged to make from the most general to the most individual (8). The student has to *learn* neurological conditions; he is not given the opportunity to *understand* them by deriving the types from the principles.

A New Start

Since classifications serve to orient ourselves in the labyrinth of facts, illimited in themselves, and since this orientation is best and most quickly obtained by a *classification according to one principle* and one principle alone, such a classification will always be the ideal one. In adopting several and, by this very fact, heterogeneous principles of classification, we are not only disturbed in our effort to orient ourselves and thus quasi in a permanent state of intellectual wavering and restlessness amidst the chaotic assemblage of isolated facts, but that part of natural science which is disease, will never thereby attain systematic unity, towards which, however, human intelligence tends in spite of the praise frequently given to facts as such, regardless of the role they may play in a systematic whole of knowledge and reasoning.

Disease is a whole of vital manifestations displayed by an individual under well-defined conditions. The physician addresses this individual and endeavors to produce a change in his vital manifestations, called "symptoms," which can be designated as disordered functions. Therefore, no other than a *functional* principle of classification of nervous disease will be in conformity with this basic conception of disease, which has been adopted and re-adopted by generations of physicians throughout the ages. If we want to construct a classification of nervous disease on a uniform principle, this can only be a functional one.

Disease is not a state but an event, and it has also been defined as a "chapter of natural history," [24] or as "a combination of symptoms appearing in a more or less orderly sequence of time and undergoing evolution." [25] These definitions comprise the time factor as a second essential

for those of highest standard. In my *Système nerveux cérébro-spinal* (Hermann, Paris, 1940) I made a first attempt to arrange the subject according to function. It should be self-evident that a manual of physiology would adopt function as the criterium of grouping; but the influence of neuro-anatomy has been so powerful that even physiologists did not resist it in their own branch, invaded with their own consent.

[24] W. Riese: "The Principle of Evolution of Nervous Function." *Jour. of Nerv. and Mental Disease, 98*: 255-266, 1943.

[25] W. Riese: "The Principle of Compensation of Nervous Function." *Jour. of Nerv. and Mental Disease, 100*: 263-274, 1944.

element in disease and therefore nervous diseases must also be studied and classified according to *stages*,[26] although this chronological criterium cannot compete with the functional one to which its chief position in the hierarchy of principles of classification should never be denied. The neurologists of the nineteenth century made a definite and resolute attempt to relate nervous disease not only to the central nervous system as a whole, but to its various levels according to a given syndrome. In spite of its frequent misuse and dogmatic application this *regional* (9) element can no longer be neglected in any study or classification of nervous disease. But again, it cannot be substituted for the always leading functional principle of classification. As a matter of fact, the regional element has been given such an overwhelming importance in our conventional study of nervous disease, that the latter has become nothing but the study of the involvements of the various divisions of the central nervous system established by neuroanatomy and comparative neurology; this means to relegate the true and basic nature of disease, namely, its functional one, into a secondary position (10). The regional or topic element is only indicative of the site of the presumable or real *lesion*, but not of that of the *disease*, the latter, as an event having no "site," no less than health has its site. Nor is lesion synonymous with disease (11), but only a part of the picture, the role it may play in the whole (whether cause, effect or concurrent) very frequently being open to doubt and discussion. Therefore, to *pathologic anatomy* (12) cannot be given the chief position in the hierarchy of principles of classification of nervous disease, although the nature of the morbid process cannot be disregarded in any attempt to bring order and system into nervous diseases. The same holds true for the *etiological* (13) factor. The march of reasoning outlined above has always been followed by neurologists when studying and describing the features of an *individual* disease. I only submit to adopt the same procedures in arranging nervous diseases in groups.

An attempt must now be made to discover a functional principle of

[26] "What clinical examination reveals to us in the patient is a state of disordered function, one of a continuous series of such states that began with the onset of his illness and will continue to its end. Diagnosis, therefore, consists not merely in the simple localization of a lesion or disease process within the nervous system, but also in the interpretation of the entire sequence of events that have made up the illness. This illness, then, has to be thought of as something having an existence in time as well as in space, and no conception of nervous disease is adequate or real that does not embody this idea of an active process. Here, then, we have a non-anatomical or time factor that must be taken into account." F. M. R. Walshe, *Diseases of the nervous system*. Edinburgh, E. & S. Livingstone, 1944: p. 3.

classification admitting of a relation of nervous disease to the central nervous system and to its various levels. *The level being a spatial concept, the nervous functions related to levels can only be those functions which can be expressed in terms of space; motion and sensation are the only ones.* In thus arriving at a classification of nervous disease according to motion and sensation as to the chief principles of classification, we join the forerunners and founders of modern neurology: R. Whytt, Cullen, Romberg, Hughlings Jackson.

Classifications reflect the march of doctrines called forth to explain the conditions to be classified, and so does the classification of nervous diseases. As has been shown, neurology sprang from different sources. Many, if not the majority of the nervous diseases we now distinguish, have been described only recently, and they bear the marks of the methods of investigation (mostly pathological) which led to their recognition. The number of nervous diseases the *names* of which reflect a functional approach is very small, and they belong to the ancient treasure of neurology. Such are Locomotor Ataxia, Spastic Paralysis, Paralysis agitans, Torsion Spasm, Chorea, Neuralgia, etc. I do not know any *recently* described nervous disease the name of which would indicate disordered function. In some instances the disease is called by the name of its discoverer and here a road seemed to be open to a definition on physiological grounds. But it is significant that Pick's disease is understood by every neurologist to be primarily a localized convolutional atrophy, Alzheimers' disease a generalized convolutional atrophy (both occurring in middle aged individuals), Wilson's disease a progressive lenticular degeneration, Schilder's disease an Encephalitis periaxialis diffusa of juvenile people, these (although incomplete) definitions again revealing the overwhelming influence of pathology in terminology as well as in definition of nervous diseases. A whole group of nervous diseases was classified recently by A. Ferraro as demyelinizating processes, the principle of classification again being an intrinsically neuro-pathological one.

To establish a classification of nervous diseases according to function in which, however, the various conditions have already been defined and termed according to the nature of the morbid process is not a very promising task. I believe that the time has not arrived as yet to build up a definite classification of nervous disease on physiological grounds. But I do not subscribe to John Brown's formula "Nosologia delenda," for which I rather like to substitute: "nosologia negligenda" as a most urgent but only preliminary motto. What we need first, is a *general framework*

for a classification of nervous diseases on physiological grounds, leaving it to the future to have names and definitions reflecting their primary functional characters. As a matter of fact, the meaning of neurological conditions are submitted to changes in spite of their unaltered names. Neuroses, Tabes, Chorea are examples of such changes, although the new meanings given to these conditions were made according to principles other than functional ones. The interpretation of our actual neurological conditions will perhaps undergo similar changes, their names might be replaced by new terms expressing in the first analysis the true nature of disease, namely disordered function, additional terms then providing for their regional, pathological and etiological features. As a matter of fact, we have already such names. Cerebral Diplegia, Cerebellar Diplegia, Bulbar Paralysis, Spastic Spinal Paralysis reflect the disordered function and the levels involved. Infantile Cerebral Hemiplegia, Infantile Paralysis express the disordered function and life period in which the disease occurs. In terms such as Hereditary (Familial) Spastic Paraplegia or Diplegia, Hereditary Cerebellar Ataxia, the etiological factor is emphasized together with the disordered function and the topic element. All those names are still incomplete, but they may serve as models for future classification of nervous diseases the various names of which would have to express primarily disordered function, then also the topic, the pathological, the etiological and the age factors.[27]

Comments on the Scheme

A classification starts from the most general concept, that of the class, and leads to the most individual one, that of the species. The best classification will be that in which the species appears determined by as many characters as possible, the determining factors being the criteria of the various groups and sub-groups. The still logical character of what we call a species sets a limit to this progressively individualizing procedure we use in classifications; the latter ones will never include a particular case, but at best an *ideal* type abstracted from a number of *real* individuals. But the closer classifications come to individuals, and the more completely

[27] We cannot renounce the use of the Greek and Latin languages for purposes of terminology, not only for historical reasons, keeping alive the imperishable efforts and traditions of our predecessors, but because of the truly international and supranational character of our art necessitating a universal but neutral language. In a period of national distrust and estrangement the continued or revived use of the humanistic symbols might help to re-establish that "republic of scientists" the pioneers of the "enlightenment" dreamt of and mankind needs again so imperiously.

the species will thus be determined, the smaller will be that unpleasant but unavoidable gap separating classification from individualization. In none of the previous classifications of nervous diseases were the species, i. e. the various diseases, presented as sufficiently determined, and this holds true even for those classifications which by correctly conceiving disease as disturbed life, adopted a physiological principle as the chief principle of classification. To take an example: In Romberg's primarily functional classification tabes appears as a disease determined by its being an acinesia (paralysis) at the spinal level. But a symptom (such as paralysis) having a definite regional affinity is not yet disease. To pass from regionally disturbed function to disease, the former must undergo evolution (i. e. have a certain course); the agent responsible for the disturbance (the etiological factor) as well as the nature of the morbid process (the pathological factor), also belong to the minimum determining characters of disease.

We have no knowledge as to the mutual relationship of these determining factors. Therefore we are not entitled to subordinate them to each other in an hierarchical order which could only be established arbitrarily. The tree with all its branches has always been the favorite symbol of classification (being in contemporary natural science almost synonymous with genealogy). It shows its failure when approaching the species and the sphere of individualization. The reason is that subordination and embranchment are not the true symbols of life. The ancients already used the circle as the symbol of life, when they expressed it by a snake biting its own tail. Where classification reaches the species, i. e. almost the individual case, the circle must be adopted as the symbol of the interaction and interdependence of the determining agents; where classification reaches the reality of life, there is no longer subordination but only cooperation and consent.

This is symbolized by the uninterrupted line along which the various determining factors are arranged. The line must necessarily be a circle because to each factor has to be given fundamentally equal importance (variable, however, according to individual constellation). To none of them a permanent chief position can be assigned. This mobile hierarchy is symbolized by the equal distance of each factor from a hypothetical centre. In such a classification there remains but one subordination, i. e. that of disturbed motion and sensation to disturbed (nervous) function (14), all other principles being co-ordinated and arranged as circles characteristic of each disease. (Fig. 5). In each of these circles the various determining factors have their given values. E. g. a circle may mean:

General Scheme of a Classification of Nervous Diseases According to Function

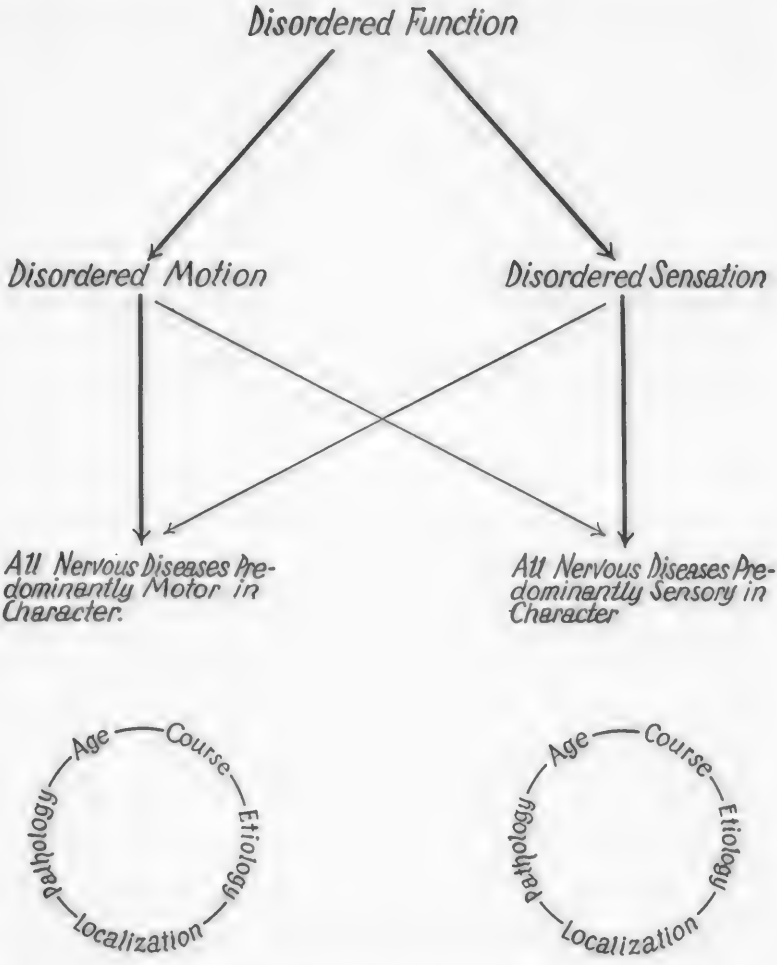

Fig. 5

General Scheme of a Classification of Nervous Diseases according to Function. For explanation see chapter "Comments on the Scheme."

Spinal disease, associated with inflammatory changes, infectious in origin, progressive in course, occurring in childhood. Each factor may now be chosen as a principle of sub-classification. Our basic type of spinal disease may thus be changed and become spinal disease occurring in adult life (instead of childhood) all other determinations being equal again. Another type would be the same disease but degenerative (instead of inflammatory) in pathologic character occurring either in childhood or in other life periods. The consideration of the various etiologic factors and courses would give still more types. And so for each level of the nervous system. But we may also classify according to life periods as to a major principle and then sub-classify according to levels etc. There will be more frames than can be filled out by actual knowledge, so that this type of classification might even lead to new discoveries, thus refuting the argument that systematization is sterile and does not advance positive knowledge. It is indeed possible (although not certain), that among the many combinations our scheme admits there are hitherto unknown realities produced by nature varying and individualizing endlessly the constituent elements of life and disease.

ADDENDA

Concerning Problems of Modern Neurology Raised in the Text

1. It is not my purpose to present a list as complete as possible of all the classifications of nervous diseases ever conceived. What we need is an intelligent selection of types being the milestones on the road to the present state and to a future classification of nervous diseases on physiological grounds. Classifications necessarily reflect the ideas of their authors and their time; the various types of classification of nervous diseases thus constitute a most important chapter in the history of neurology (which has still to be written). As some classifications will reveal, a given approach, although legitimate as such, was frequently overstressed and given all-importance; it is hoped that the analysis of these classifications will prevent the revival of ideas and doctrines always alert and at work to threaten future advances in the subject.

The classifications of the past comprised morbid entities we no longer distinguish, others, although bearing the names of recent diseases, had a more or less different meaning from the latter ones. Since in each historical period diseases are shaped by the prevailing physical, cultural, philosophical, social, educational, political, nutritional and other conditions, proper to the time, our effort to identify the diseases of one period with those of another, will never yield more than approximate results. About 20 years ago the writer made the statement that the symptomatological picture of "Hysteria" was undergoing a profound change under the growing pressure of social and economic conditions, the feature previously believed to be the most outstanding in the whole picture, i. e. the great attack, steadily

disappearing.[28] It remains problematic whether a physician studying and describing Hysteria about a century ago, would identify as Hysteria one of our present day cases.

In my opinion it is always difficult and sometimes impossible to give a correct interpretation of the true meaning of names given to a given disease at a given period, since these terms imply an approach, doctrines and principles of explanation we can at best reconstruct in our mind, but never re-experience in their living state and their totality. Instead of making considerable, rarely successful efforts to express the scientific language of the past in terms of the present, I would rather refrain from re-touching and re-shaping the symbols of our predecessors in the light of our own ideas and terms and renounce that *total* understanding which even the most diligent effort of modernizing the past in thought and scripture, would never yield.

2. The way Cullen used the term "Neurosis" is indicative of the first chapter in the history of this term and its changing significance. The second chapter was written by the nineteenth century which called "Neurosis" that class of nervous disease "in which there is no morbid change." The additional statement made by Hughlings Jackson is most characteristic of the time:

> I mean, of course, that there is not one yet for us. There is a morbid change, no doubt, a minute one, but we have not discovered it.[29]

The third chapter was written by the contemporaries who understand neurosis to be a dynamic state of conflict, associated with suffering and symptoms, ***regardless*** of its possible structural basis.

The history of the term "Neurosis" might become the history of the study and classification of nervous disease. Being at first a group of diseases classified according to functions or symptoms, it assumed in the nineteenth century an anatomical pattern and finally takes again its original functional shape, although on a much broader basis, including not only the nervous system, but the whole personality, its past, actual state and future tendencies, as well as the cultural and social structures of our society, thus reaching far beyond neuropsychiatry, even medicine, and becoming almost a way of life proper to our time.

Previous generations had a strong feeling for this all-embracing nature of "Neurosis," which comprised clinically much more than we actually call such now, indeed the whole of "nervous diseases." According to Pinel, the névroses "forment une des parties les plus curieuses et les plus importantes à connaitre de l'histoire philosophique de l'homme; et leur doctrine est liée avec la physiologie, l'hygiène et l'histoire de l'entendement humain." (*Nosographie Philosophique*, Paris, 1807, t. 3, p. 7).

This passing of the concept of "neurosis" through a three-fold meaning was at the same time the passing through as many doctrines of nervous function. Under the growing influence of the most recent, the psychological approach, neurosis

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[28] "Wandlungen in den Erscheinungsformen der Hysterie," *Die Medizin. Welt*, I, 1927, no. 32.

[29] "On the Diagnosis and Treatment of Diseases of the Brain." *British Med. Journal*, vol. II for 1888, p. 115.

shifted gradually but steadily from neurology to psychiatry and psycho-pathology. There was a time when neurosis was claimed vigorously by both neurology and psychiatry. Charcot who treated neurosis ("Hysteria") as one of his most favorite subjects, was a clinician. His pupil, S. Freud, to whom we owe a systematic doctrine of neuroses, started as a neurologist (see his studies on the brain of petromyzon, on Cerebral Diplegia, on agnosia, which term was even suggested and introduced by him). Most of our actual textbooks of neurology still treat neurosis. Only by recalling this threefold origin and meaning of neurosis can we understand that neurosis finally became the critical and most vulnerable chapter in modern neurology, particularly when associated with social problems which the physician frequently endeavored to disregard as not being medical problems proper, but which nevertheless contributed to the outbreak and to the special shape of neurosis. We may learn from history that no exclusive and no selective view of any disease ever survived. The psychoanalytic doctrine of neurosis has firmly established its rights, and generally speaking, psychoanalysis from being a subversive or revolutionary activity has become a legitimate power. But it will only survive as one element in that universal approach towards disease, which medicine as a *system* of experiences and knowledge can never deny nor renounce.

In relating "neuroses" or nervous diseases to the central nervous system, Cullen affirmed his adherence to solidar-pathology, thus paying tribute to his predecessor, F. Hoffmann. In the final analysis it was the continuance or the revival of the teaching of the methodists. Since then neurology has never denied its springing from these sources. It is true that it received in modern times many contributions from branches closely related to basic principles of humoral-pathology, such as the metabolic states, deficiencies and endocrinopathies. But neurologists were always anxious to assign to these conditions their theaters of action within the central nervous system and to trace them back to presumptive or real centres regulating the functions disturbed. In the hands of many physicians endocrinopathies turned out to be *regional* disorders according to glands and levels of the central nervous system. Recently the hypothalamic region was enthroned to control nearly all types of metabolism (and emotion): this attempt started already with Marshall Hall who was the first to classify nervous disease according to known structural representations of nervous function.. His "ganglionic system" related to the *chemical* changes in the disposition of the *atoms* of the animal body, its solids, fluids, etc., was believed to "regulate the interstitial absorption, deposition, re-absorption, and the secretion of the *atoms* or *particles* of which the animal frame is composed, and of the ingesta and egesta" (*Diseases and Derangements of the Nervous System*, 1841, p. 119). Claude Bernard's "piqure" was the decisive step of a neurophysiologist towards tracing back metabolic changes to the central nervous system as to the almighty solidum. Neurology withstood frantically all temptation to give up its origin from solidar-pathology and the modern trend, overwhelmingly neuroanatomical and neuro-pathological, added a new and apparently indestructible equipment to solidar-neurology. Neurophysiology, too, remained neuromechanics or neuro-physics, thinking and speaking in terms of current, resistance, threshold, waves, etc. The modern biochemical approach in synaptic transmission was never intended to deprive the structures involved of their

primary importance as true *organs* of transmission. These remarks were necessary to assign to modern neurology its place in the history of ideas experienced and laid down by physicians throughout the ages. Among the contemporaries nobody did more to unveil solidar-pathology as only one approach among others than B. Aschner.[30] But so far, there is not the slightest indication of a future neurodynamics relating nervous disease to the humours as to *primary* principles of explanation.

3. Pinel's universal approach is among the best witnesses of the influence political events and revolutions may exert on scientific doctrines and methods. A similar influence is to be found in the annals of modern neurology. I quote H. Head and his historical chapter on Aphasia:

> Localisation of speech became a political question; the older Conservative school, haunted by the bogey of phrenology, clung to the conception that the brain "acted as a whole," whilst the younger Liberals and Republicans passionately favoured the view that different functions were exercised by the various portions of the cerebral hemispheres. (*Aphasia and Kindred Disorders of Speech*, Cambridge, 1926, vol. I, p. 25.)

In 1861, the roles seemed to be reversed and the universal approach was rejected by those who shared advanced opinions. The apparent contradiction can only be understood when considering the place to be given to the doctrine of localization of nervous function in the history of ideas. This doctrine decomposed what was previously thought to be an indivisible unity (the "soul") and it distributed the new substitutes for the soul, i.e. the "psychic functions," over the surface of the brain, this was the critical hour of the whole concept of the soul and of its seat in natural science. But it was also the hour of a rising materialism, quite different from the 18th century materialism still compatible with a soul (even with God).

The "Droits de l'Homme" were the keystone of the French Revolution, and they could neither be conceived nor granted without knowledge and appreciation of the manifold conditions and determinations of human nature. Here were the truly political and philosophical sources of Pinel's universal approach towards disease in general, nervous disease in particular. After a long period of unilateral (anatomical, pathological, bacteriological, constitutional) doctrines of diseases, Russian neurology, at the time of its new foundation after the revolution, made again exactly the same universal approach when trying to solve the problem of traumatic neurosis by giving full credit to the all-determining influences of time, cultural and social structure of the society in which neurosis occurs, to the life and working conditions of the diseased individual, his physical, intellectual and emotional equipment and the forces in his power to make a contribution of his own to the therapeutical procedure and its success.[31]

4. It is true that constitution interpreted as an *ideal*, because never completed whole of vital manifestations proper to a given individual, implies also a chronological element, since it requires time as the medium in which these vital manifesta-

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[30] "Empiricism and Rationalism in Past and Present Medicine." *Bull. Hist. Med.* *17*: 269-286, 1945.

[31] See L. Rosenstein-Moskau in: W. Riese, *Die Unfallneurose als Problem der Gegenwartsmedizin*. Hippocrates Verlag, Leipzig, Zurich, Stuttgart, 1929.

tions occur. This is one of the reasons why we cannot express constitution in terms of a *spatial* element alone (such as *e. g.* the chromosomes). The principle of chronogenetic localization admits of no isolated nor regional element representative of *chronological* processes, necessarily implying the activity of the whole. But the whole of vital manifestations we call an individual's constitution, undergoes no evolution. In other words a constitution has no course, and this lack of history distinguishes constitution from disease.

5. There is a similar tendency among our contemporaries to overstress the importance and the role of the central nervous system and to make it a true life-giving centre (although it needs life itself). The principle of integration was certainly one of the most useful and one of the most profound concepts ever conceived in the doctrine of nervous function, provided it is interpreted as the unifying action of the organism. It was introduced by the British school of neurophysiologists (Sherrington). But it was unfortunate that integration was believed to be the result of the exclusive activity of the central nervous system; the central nervous system in its turn being nothing but a part among others and therefore not qualified to bring about unity of the whole.

A problem of greatest importance is involved in this apparently academic question. In assigning to the central nervous system the integrative action, we make it a life-giving and unity-creating organ. This might turn out to be a culture-threatening adventure in the hands of the inexperienced since then we can hardly escape the temptation to derive man's nature from his structures. This type of metaphysics could be called brain-materialism; it is very popular among contemporary scientists. Full credit must indeed be given to the structures as to facilitating and enhancing *conditions* of life under normal and pathological conditions; but life should not be thought to be the *result* of the activity of any structure.

As a matter of fact the first indication of a tendency to endow the nervous system with an all-importance, making it a true center of life and disease, is already to be found in Cullen's teaching, who in his turn referred to F. Hoffmann quoting from the *Medicina Rationalis Systematica*: ". . . atque hinc universa pathologia longe rectius atque facilius *ex vitio motuum microcosmicorum in solidis*, quam *ex variis affectionibus vitiosorum humorum*, deduci atque explicari possit, adeoque omnis generis aegritudines internae, ad *praeternaturales generis nervosi affectiones* sint referendae." Cullen himself expressed the same doctrine with the following words: "There can be no sort of doubt that the phenomena of the animal economy in health and sickness, can only be explained by considering the state and affections of the primary moving powers in it." (*First Lines*, p. 12.)

Since each part of a living organism must be considered as endowed with a "principle of animation," we can hardly escape the danger of making the nervous system a center of life and disease. Only by recalling the *universal* presence of this principle to all of the parts can we avoid entrusting with this principle one of them exclusive of the others. Here are the sources of a long and still lasting dialectic, some writers claiming the nervous system as a life and disease producing organ, thus making all diseases "nervous diseases" or rather diseases of the nervous system, others limiting the role of the nervous system to nervous function proper. In the final analysis the principles of nervous function and the terms we use to describe them are synonymous with those we use in the general science of life.

Thus we are not surprised to detect in Bichat's discriminative analysis of vital phenomena terms to be found in any analysis of nervous function, namely sensibility and contractility: "Laissons à la chimie son affinité, à la physique son elasticité, sa gravité. N'employons pour la physiologie que la sensibilité et la contractilité" (*Anatomie Générale*, Paris, 1801). The change which the concept of irritability had to undergo from Glisson, who made it a very general property of the living fiber, to A. von Haller who restricted it to one of the organs (the muscles) exclusive of others, reflected a similar dialectic. Cullen's chapter on Neuroses (Part II of his *First Lines*) starts with the following sentences:

> In a certain view, almost the whole of the diseases of the human body might be called NERVOUS: but there would be no use for such a general appellation; and on the other hand, it seems improper to limit the term, in the loose inaccurate manner in which it has been hitherto applied, to hysteric or hypochondriacal disorders, which are themselves hardly to be defined with sufficient precision.

Here Cullen renounced the all-importance he gave to the nervous system for no other than *practical* reasons; but the basic role he assigned to the nervous system was not interfered with. I select from the interpretations given to Cullen's system two examples: in one of them, that of G. Motherby definitely inspired by Cullen's teaching, the problem is presented as a problem of diagnostic dilemma and neuro-anatomical intricacy (the all-pervading distribution of the nerves was already mentioned by F. Hoffmann when he tried to justify his view of diseases being nervous in character without exception). In the other example, that of Dezeimeris, justice was done to the fundamental difficulty involved in the double role of the nervous system as a part and as a representative of the whole i. e. of an organ:

> Nervous diseases resemble almost every other disease, which affects the human frame; and oftentimes it is very difficult to distinguish whether it is the real disease, or only nervous affections assuming the type; for, as scarce any part of the body is without nerves, and very few altogether without feeling, the nerves must not only suffer, when they themselves, or the brain, or the spinal marrow, are primarily affected, but also when the other parts are diseased; and hence the difficulty of fixing a certain criterion by which nervous disorders may at once be distinguished from all those not so called; though in some instances, a small degree of attention will enable us to clear away the uncertainty. (G. Motherby, *Medical Dictionary*, London, 1795.)

> Partant de ce principe que le système nerveux est l'origine et la base de tous les phénomènes de la vie, il en déduisit que tous les corps qui agissent sur l'organisme ne le font qu'en modifiant ce système. Toutes les maladies dépendent donc d'une affection du système nerveux, de l'appareil en lequel réside la puissance motrice et sentante du corps humain, et les médicaments qui les guérissent n'ont d'action que sur les parties solides douées de la force nerveuse. (Dezeimeris, *Dictionnaire Historique de la Médecine Ancienne et Moderne*, Paris, 1836. Article: Cullen.)

The first quotation might also have been influenced by Robert Whytt who wrote in his *Observations* (1765): "Since in almost every disease, the nerves suffer more or less, and there are very few disorders which may not in a large sense be called *nervous*, it might be thought that a treatise on nervous diseases should comprehend almost all the complaints to which the human body is liable." In his *Observations*,

R. Whytt proposed "to treat of those disorders, which in a *peculiar* sense deserve the name of *nervous*, insofar as they are, in a great measure, owing to an uncommon delicacy or unnatural sensibility of the nerves, and are therefore observed chiefly to affect persons of such a constitution." Exactly the same reasoning was made by G. Cheyne (1735). The whole doctrine of nervous disease might indeed be traced back to an English tradition.

From the same British school which produced Sherrington's *Integrative Action of the Nervous System* in the twentieth century, sprang, in the eighteenth century, Robert Whytt, the neuro-physiologist who warned his contemporaries from interpreting "sympathy" or "consent" (being nothing but timely expressions of the principle of integration) on an exclusively anatomical ground:

> But although from what has been said, it may appear probable, that all nervous *consent* proceeds from the brain; yet we cannot pretend, from this principle, to account, in a satisfactory manner, for all the various instances of *sympathy* observable in the bodies of animals, since many of them may depend on such a state of the brain, and other parts, as cannot be the object of our senses. (*Observations*, pp. 56/57.)

In a very enlightening note he made the additional statement, that "*sympathy* depends upon a principle that is not mechanical; and that, to suppose it may be owing *solely* to the particular situations, arrangement, or connection of the medullary fibers of the brain, or to the union of the nerves proceeding from it, is as unreasonable, as to imagine that *thought* may be the result of a motion among the particles of the animal spirits or other subtile matter of the brain" (*l. c.*). It might not be out of place to recall that the writer discussed the principle of integration on precisely the same logical ground in several papers, without being aware of R. Whytt as of his forerunner, at the time of publication. Obviously, to admit of the necessity to introduce a non-mechanical factor in physiology, was not believed to be an anti-scientific attitude at the time when R. Whytt wrote the passage quoted above.

6. In a rational doctrine of nature all actual changes must be expressed in most general, communicable, universally understandable and therefore *objective* terms, individual and incidental features, significant and important in themselves and in other branches of human thought and action, having no seats in the austere but bare auditorium of rational science. The objective formula by which we express all types of change occurring in nature, is motion. A doctrine of diseases going back to motion as to their last constituent element, is a truly rational doctrine of diseases. Erasmus Darwin's *Zoonomia* contains this rational element, although he was not the first to adopt it, F. Hoffmann and W. Cullen being his forerunners.

Motion being the rational formula of change, and nature being constantly submitted to change, we cannot escape viewing nature as being in permanent motion. This view, however, springs from reasoning (ens rationis) and not from perception. If we want it to be reality and not phantasy, we have to admit the *existence* (and not only the idea) of an imperceptible matter being in permanent motion. This is Kant's "ether," the introduction of which into a rational physiology I have declared necessary in previous publications.[32]

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[32] "Critique et Interprétation rationnelle du principe de l'intégration." *Archives Suisses*

7. The distinction between voluntary and involuntary (automatic) motion has its pragmatic value. But it was unfortunate that it was given a topic meaning.[33] By voluntary and involuntary motion we describe two different types of behavior in *psychical* terms. But in speaking of nervous function related in its turn to nervous structure, we describe phenomena in anatomico-physiological terms. Psychical and anatomic-physiological terms imply two very different and heterogeneous principles each of which can and must be treated on its own grounds, neither in the terms of the other. The failure to realize this distinction became responsible for the famous doctrine of speech centres expressing mental changes in anatomical terms(*e. g.* a given type of speech defect by the interruption of pathways connecting two hypothetical centres). This "anatomical psychology" was denounced in Great Britain by H. Head and on the European continent by C. v. Monakow.

All statements concerning consciousness, volition etc. of another living being are hypothetical, since we have no immediate knowledge of the conscious sphere of another individual or an animal, leave alone parts of an animal. We are only allowed to submit the *objective* behavior of another living being to our interpretation and in trying this we cannot but use our self-experience as the only key at our disposal which might unlock the secret of a foreign consciousness. In the light of this self-experience we are inclined to assign to purposive or adaptive behavior a "psychic" character. But since such behavior is displayed by every living being, even in its most simple and fragmentary forms, it cannot be denied to any organized product and therefore not made a discriminative criterium ot fragments or *levels* of the central nervous system.

Therefore no classification of vital manifestations can be established according to their being accompanied or not by consciousness as a *topical* element. The undeniable fact that certain types of abnormal behavior (symbolic thought and expression) may be associated with more or less selective lesions, thus revealing the most vulnerable regions of the mechanisms involved, does not make the undisturbed behavior a regional one. Voluntary motion is more likely to suffer after a given region of the brain is destroyed than after destruction of another. It is not voluntary motion in itself, but only its disturbance which might show such an affinity to definite regions of the brain. With these restrictions in mind we can still use disordered voluntary motion as among the symptoms related to distinct levels of the central nervous system.

8. There are, however, exceptions. An excellent presentation is that of M. Neustaedter (Philadelphia, 1929), who although adopting common use and treating nervous diseases as "parts," made these chapters of disordered nervous function, sub-dividing them according to regional criteria. He thus distinguished Spastic paralysis, Flaccid paralysis, Ataxias, Tremors and Spasms as "Parts" of the whole of diseases constituting clinical neurology. Similarly, the textbooks of H. C. Wood (Philadelphia, 1887) and H. C. Thomson (New York,

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de Neurologie et de Psychiatrie, 44, 313, 1940. Fasc. 2—"The Principle of Integration. Its History and its Nature." *J. Nerv. and Ment. Dis., 96*: 296-312, 1942.

[33] It seems that Th. Willis was the first to suggest this doctrine (see J. Fulton, *Physiology of the Nervous System*, Oxford University Press, 1943, p. 463).

1900) were written on a functional plan; as a matter of fact, H. C. Wood's *Nervous Diseases and Their Diagnosis* contained nothing but functional subjects, namely Paralysis, Motor Excitements, Reflexes, Disturbances of Equilibration, Trophic Lesions, Sensory Paralysis, Exaltations of Sensibility, Disturbances of the Special Senses, Disorders of Memory and Consciousness and Disturbances of Intellection. The similarity between Romberg's Hypercineses, Hyperaesthesias and Wood's Motor Excitements, Exaltations of Sensibility is striking. A clear distinction was made between the heterogeneous criteria of grouping ("topical diagnosis," "pathological diagnosis," "etiological diagnosis") in the manuals of W. R. Gowers (Philadelphia, 1888), L. Hirt (New York, 1895) and others; of course no effort was made to overcome the heterogeneity of principles of classification or grouping and to adopt a uniform and a functional criterium as the leading one. A nucleus of functional arrangment of nervous diseases is to be seen in J. Ross' *Handbook* (Philadelphia, 1885) and in S. E. Jelliffe's and W. A. White's *Diseases of the Nervous System* (Philadelphia, 1923), Part II bears the title: "Sensorimotor Systems. The Neurology of Sensation and Motion" (Part I being devoted to "The Physico-Chemical Systems, The Neurology of Metabolism, Part III to "Psychical or Symbolic Systems"). Part II was sub-divided according to regional criteria, but contained also "types," etiological and pathological groupings. Other exceptions may have escaped my attention.

9. What may be the contribution of a given region of the central nervous system to a given vital manifestation under normal conditions, i. e. the individual function of this region, will always remain a matter of pure speculation, since there is no means of testing this region in an intact animal not submitted to experiment or disease. All we know about the mutual relationship between nervous structure and nervous function, is derived from pathological facts, a lesion located in a given region being frequently related to a given symptom. Subsequently, there can only be a localization of symptoms. The doctrine of localization of nervous function was conceived by F. J. Gall and shaped by the neurophysiologists and clinicians of the second half of the nineteenth century. The doctrine of localization of nervous symptoms was born when Hughlings Jackson wrote the following sentences (quoted by H. Head, in his *Aphasia*, vol. 1, p. 50):

> Whilst I believe that the hinder part of the left frontal convolution is the part most often damaged, I do not localise speech in any such small part of the brain. To locate the damage which destroys speech and to localise speech are two different things. The damage is in my experience always in the region of the corpus striatum.

But it came to its full vigor in the work of C. v. Monakow, especially in his *Lokalisation im Grosshirn* (Wiesbaden, 1914). One might raise the question whether the doctrine of localization of nervous symptoms should be called a true "doctrine," since it expresses but the trivial fact that symptoms are different according to the organs involved, Morgagni probably being the first systematic teacher in such anatomical terms. What gives to this general experience its special pattern, is the fact that the brain is in itself a whole of organs and the involvement of each of these single organs may be responsible for a given symptom. But since we express all of the functions related to the central nervous system in terms of motion and sensation, the doctrine of localization finally becomes the

study of motor and sensory disorders according to the regions of the central nervous system involved, thus enabling us to distinguish spinal, cerebellar, cortical, and other types of disordered motion and sensation: this is indeed all that remains of the principle of localization as of a principle of classification; but it is sufficient to make it a mighty instrument of our grouping power.

10. Any doctrine of diseases which refers to anatomy as to the proof of its legitimacy, means an impediment to our therapeutical effort. We believe structures to be rigid and static (although they can as well be conceived as flexible and dynamic). Since therapy is understood to bring about a change in the actual condition, there seems to be but little hope to produce such a change in diseases the essence of which is derived from anatomical principles. Indeed, in no other field does the physician seem to be as discouraged and helpless as in the diseases of the central nervous system, and with some exceptions, neurology is still the science of the incurable, and psychiatry the science which teaches us how to care for the sick rather than how to treat or cure him. It is significant that a new stimulant came from surgery, cutting of pathways and destruction of centers indeed being the only issue left to a neurologist thinking primarily in terms of neuro-anatomy. Whatever may be the healing effect and the real benefit of "psycho-surgical" procedures: the basic reasoning according to which a complex of emotions and attitudes can be isolated from the intellect by (surgically) isolating the regions believed to be the centres of this complex from the centres of the intellect, is a show-piece of "anatomical psychology."

11. Although R. Virchow's "anatomical concept"[34] was understood to "ally itself to the vital functions, and to embrace therefore a large part of that which the present division-of-work allots to the clinician," his question "*Ubi est morbus*"? leaves no doubt as to his interpreting disease as a merely local (thus spatial) change. He rejected "general diseases." Again he interpreted them on *topical* grounds, and he understood them to be diseases in which the body would be altered in all its parts. This, he maintained, never happens. But since disease is a *chronological* whole, and since each chronological whole in the course of its evolution, hardly spares any of the parts (although their involvement may escape our actual methods of investigation), each disease, when given its full meaning, i. e. its historical meaning, is a "general disease." The reasoning here submitted is the basic principle of C. v. Monakow's doctrine of chronogenetic localization of nervous function. If this principle could pass from being a principle of brain-pathology to becoming a principle of general pathology, brain-pathology would have been allowed to make one of the most valuable contributions to the doctrine of diseases. Whatever may be the issue: the legitimate question in our subject is not: Ubi est morbus?—but: *Ubi est laesio*?

12. Although it is conceivable that with increasing knowledge a classified disease may be shifted from one division to another, the principle of classification must be constant. Motion and sensation as principles of the classification of nervous disease meet this requirement. But in adopting the pathological processes as chief principles of classification we adopt principles the definition as well as the demarcation of which are still an open problem in neuropathology. Vascular conditions,

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[34] Morgagni and the Anatomical Concept. Translated by R. E. Schlueter and J. Auer, *Bull. Hist. Med.* 7: 975-989, 1939.

inflammation, degenerative diseases and neoplasms are the main fundamental processes we distinguish in neuropathology. But inflammation is originally a clinical concept and it is frequently given an etiological meaning. Its histopathological definition encounters great difficulties. What we call degeneration in neuropathology is, according to Spielmeyer,[35] a complex phenomenon, comprising metabolic changes involving the nervous parenchyma primarily. But degenerative changes may be the effects of circulatory disorders. Their distinction from inflammatory processes is sometimes impossible. Indeed primary degeneration of the nervous parenchyma may be associated with an inflammatory reaction, reparatory inflammation or what is called secondary or symptomatic inflammation. Tumor-like structures are not limited to the division "neoplasms." Neoplastic features have been described in various neuropathological conditions such as multiple sclerosis, diffuse infantile familial cerebral sclerosis and scarlet fever encephalitis (Ferraro).[36] How could there ever be a somewhat solid and durable classification of nervous disease if the principles according to which we try to classify, are in themselves flexible?[37]

13. I do not think that we should adopt etiology as a *major* principle of classification of nervous diseases. With few exceptions the etiology of most of them is unknown. But what is still more important, there is no abnormal vital state which could be traced back to a *single* etiologic factor. Constitutions, hereditary and familial factors, congenital anomalies are states, but not yet diseases. To change them from their being states into becoming diseases, new and precipitating factors are necessary. But how to solve the problem whether in a given case the *constitutional* state was of greater importance for the outbreak of a disease than the *constellation*? There is evidence that the lack of positive knowledge leads sometimes to arbitrary decisions in the subject. Nobody expects any longer the pathogenic agents to be the only responsible factors in infectious disease. But who has the audacity to measure the contribution the "terrain" makes to the malady and thus to establish the true or decisive factor in the outbreak of the disease? Since there is no *objective* criterium allowing of a determination of the relative power of each of the etiological factors involved,[38] a classification of nervous diseases, according to etiology, as to its major principle, lacks security and distinctness.

14. Motion and sensation, although being *elementary* functions, related to the central nervous system, should not be understood to be *fragments* of life. What here is called "function," is an individual pattern of life, each vital manifestation implying the activity of all of the parts of the organism. This is what we call

[35] Spielmeyer, W: *Histopathologie des Nervensystems*, J. Springer, Berlin, 1922.

[36] Ferraro, A.: "Pathology of Demyelinating Diseases as an Allergic Reaction of the Brain." *Arch. Neur. and Psychiat. 52*: 443-483, 1944.

[37] The reasoning here presented was anticipated by Pinel who wrote in his *Nosographie Philosophique* (1807):
". . . il peut arriver qu'à une époque plus avancée de la science, on apercoive de nouveaux rapports qui fassent changer ou modifier l'ordre de distribution: cependant, en fondant cette dernière sur l'étude judicieuse des symptomes, la structure et les fonctions organiques, des parties, on a moins à craindre les changemens et l'instabilité" (t. I., note p. xlviii, Paris, 1807).

[38] See W. Riese: "The Structure of the Clinical History." *Bull. Hist. Med. 16*: 437-449, 1944.

"*integration.*" Due to our discriminative intelligence we isolate from the always universal activity of the organism certain outstanding phenomena; but this intellectual isolation is subject to individual variations and to time influences, these factors being responsible for what a given author or a given period believes to be the most outstanding or the most obvious symptom in a whole of symptoms called disease.

What makes the always universal activity of the organism merge into an individual function (such as motion or sensation), depends on numerous factors (such as preceding activities, actual conditions and future tendencies), among which the structures we feel justified to relate to this function are but one element namely its most representative one. The central nervous system is the most suitable instrument (although probably not the unique one) our organism possesses for the actualization of certain patterns of life.

But unfortunately this same universal activity of the organism makes also any attempt to classify its vital manifestations according to motion and sensation as to two *separate* orders of activity under normal and pathological conditions somewhat dogmatic. There is no vital act, pathological or not, which would not comprise motion *and* sensation at the same time and this holds true even for the so-called elementary functions. In most of the nervous diseases motion and sensation are involved together. With this restriction in mind, we might still classify according to motion and sensation, although such a classification would be more of a didactic value than express the integrity of principles. But classification is pragmatic and social in nature and purpose and not advancing theories of recognition. As a matter of fact, the term "sensori-motor," frequently used in textbooks (and some classifications) foreshadows attempts to classify nervous diseases according to preeminently motor and preeminently sensory disorders.

In expressing all nervous disorders related to the central nervous system in terms of motion and sensation, I deliberately adopt a very reduced model of nervous function and nervous disease. However, in restricting the elements of speech admitting of cerebral localization to motor and sensory ones, I do not intend to deny to the other constituent elements of speech their importance. Language is "symbolic formulation and expression" (H. Head), a quality proper to the human being and pre-supposing functions using organized matter as their suitable instrument, but legislative in themselves, commanding matter rather than surrendering to it. But this synthetic and organogenic element of speech cannot be related to the central nervous system in any precise or regional manner, although its actualization may be disturbed when one of its most precious instruments, the brain or well-defined parts of it, become defective. The same holds true for *gnosis* and *praxis*. The instrument accepts, conveys and retains nothing but movement and what can be expressed in terms of this fundamental and rationally reduced element. But what can no longer be expressed in terms of movement escapes our attempts of correlation with structure. In restricting speech to its motor element as to the only one admitting of correlation with the brain, I do nothing but reemphasize the views of Hughlings Jackson who wrote: "It is the power of intellectual expression by "movements" of any kind which is impaired, those most special, as of speech, suffering most; those of simple sign-making least or not at all."[39]

[39] Quoted after H. Head, *Aphasia*, etc. I, 36.

Can we hope to express what is generally called "*higher mentality*" in terms of motion and thus relate it to the brain? We have to keep in mind that the brain has no *mysterious* qualities distinguishing it from other organs and assigning to it an exceptional place relative to other organs. The brain has a definite size, shape, weight, color, consistency and texture. All those qualities are *spatial* in character. We cannot expect to detect in the brain other than spatial phenomena. The "soul" can be related to the brain only as far as the former admits of manifestations which can be expressed in terms of space. Movement being the rational principle by means of which we interpret change in nature, and movement needing in its turn space as its medium, we are entitled to relate those (but only those) manifestations of the soul to the brain which can be expressed in terms of movements. Those are motion and sensation. However, innumerable observations are on record showing a definite interrelationship of so-called higher mental functions and brain processes. As far as disease and experiment are concerned they prove nothing for our problem: the fact that *changes* occur in those functions after brain lesions of various sites and types, does not allow us to relate the *undisturbed* functions to the regions involved. An instrument may have a defect and thus lead to a disturbance of the melody the player may produce in an intact instrument: nobody would localize the melody in the parts affected by the defect. A brain disease may abolish the sense of decency and property; nevertheless there is no space in our body or in our brain where decency and property could find their seats. We may indeed discuss those "Personality changes" as changes in *behavior*, the latter being understood to be a whole of motor (and sensory) functions. Again this is exactly what Hughlings Jackson had in mind when he interpreted "dementia" as "all those movements which, in the human subject, we should distinguish as the physical aspect of conduct," thus becoming related to the brain. Then a road is open (although a very small one) to a neuro-pathology of personality changes. Henri Bergson used (in his "Matière et Mémoire") a very instructive analogy to make clear the limits of brain research in the study of the interrelationship of brain and mind: A hypothetical genius endowed with the capacity to observe what happens in our brain could only watch the movements of the conductor, but he would not hear the brain symphony.

One might further raise the question whether the *autonomic* functions and their disorders admit of an expression in terms of motion and sensation. As a matter of fact, the very few early and recent textbooks of diseases of the nervous system which adopted a truly physiological classification treated the disorders of the "organic life" as isolated from those due to disordered motion and sensation. But we must always strive for a uniform principle of classification and the close interrelation of autonomic and somatic functions even requires such a uniform principle of classification. In some of the autonomic functions the motor element is obvious (vasomotor, sudomotor and pilomotor activity, heart rhythm, respiratory movements, pupillary action, peristalsis, paralysis). As far as the chemical processes are concerned which underlie other autonomic functions (secretion, metabolism, etc.), I think that no rationally thinking naturalist would disagree with an ultimate tracing back of chemical processes to motion.

REMARKS ON "KAPPA LAMBDA, ELF OR OGRE?"[1] AND A LITTLE MORE CONCERNING THE SOCIETY

PHILIP VAN INGEN

Kappa Lambda, after a series of assaults between 1830 and 1860, rested in peace for sixty years, until Leake [2] in 1922 published his interesting discussion of that much abused organization. Its slumbers were not disturbed again for over twenty years, until van Antwerp, after inspecting the minutes and records of the Philadelphia branch of the society, solved the mystery of what its purposes were, what its initials stood for and gave us many additional facts of great interest.

Its affairs were discussed in the interim by Frayser.[3] He described the possible connection of a secret medical fraternity at Transylvania College existing some years before Kappa Lambda, whose name was not known. He then goes on to discuss the Kappa Lambda Society, which because of its Greek letters was supposed to be a fraternity. He gives no new information about it and most of his information is derived from Leake's article.

It might be well to state his conclusions, which are quite different from Leake's and van Antwerp's:

> Our conclusion, however, after delving into the history of this first American fraternity permits us to refute most of that criticism with a clear conscience. Considering the professional attainments, medical antecedents, and high ethical standards of those who founded and promoted Kappa Lambda, we are convinced of the impossibility of believing they would conspire to perfect a secret society for purposes other than to advance the high ethical conception of the profession, promote scholarship and a scholarly attitude, cultivate harmony, and promote the advancement of scientific knowledge.

In "Kappa Lambda, Elf or Ogre?" there are several errors, which for the sake of historical accuracy should be called attention to.

This author spent a good many days in 1941 at the Philadelphia College of Physicians, studying, through the courtesy of its Librarian, Dr. Walton B. McDaniel, 2nd, these priceless records. He took voluminous notes

[1] By Lee D. van Antwerp, Editor of the Centaur of Alpha Kappa Kappa, on leave of absence, published in the *Bulletin of the History of Medicine*, vol. 17, 327-350, April, 1945.

[2] Chauncey D. Leake, "What was Kappa Lambda," *Annals of Medical History*, vol. 4, 1922, 196-206.

[3] B. H. Frayser, "Kappa Lambda, the First Professional Fraternity, etc.," *Banta's Greek Exchange*, October, 1935.

and had many photostats made, in preparation for an article which Dr. Francis R. Packard said they would be glad to publish in the *Annals of Medical History*. When the article was half done, the *Annals* ceased,—and the matter was laid aside. But he still has his notes and photostats.

Van Antwerp begins with the initiation into the society " in the summer of 1822 " of " young Doctor Porter." He tells us the " ritual is taken verbatim " from the records of the society. Webster defines verbatim as " word for word."

It may be interesting to note the action taken by the Society in regard to the form of initiation. The society organized itself June 7, 1822. Although it initiated several members, it did not take up the subject of a form of initiation of new members until September 11, 1822, when a committee consisting of Drs. Harris, Brown, Mitchell and Jackson were appointed to draw up such a form, and a suitable address.

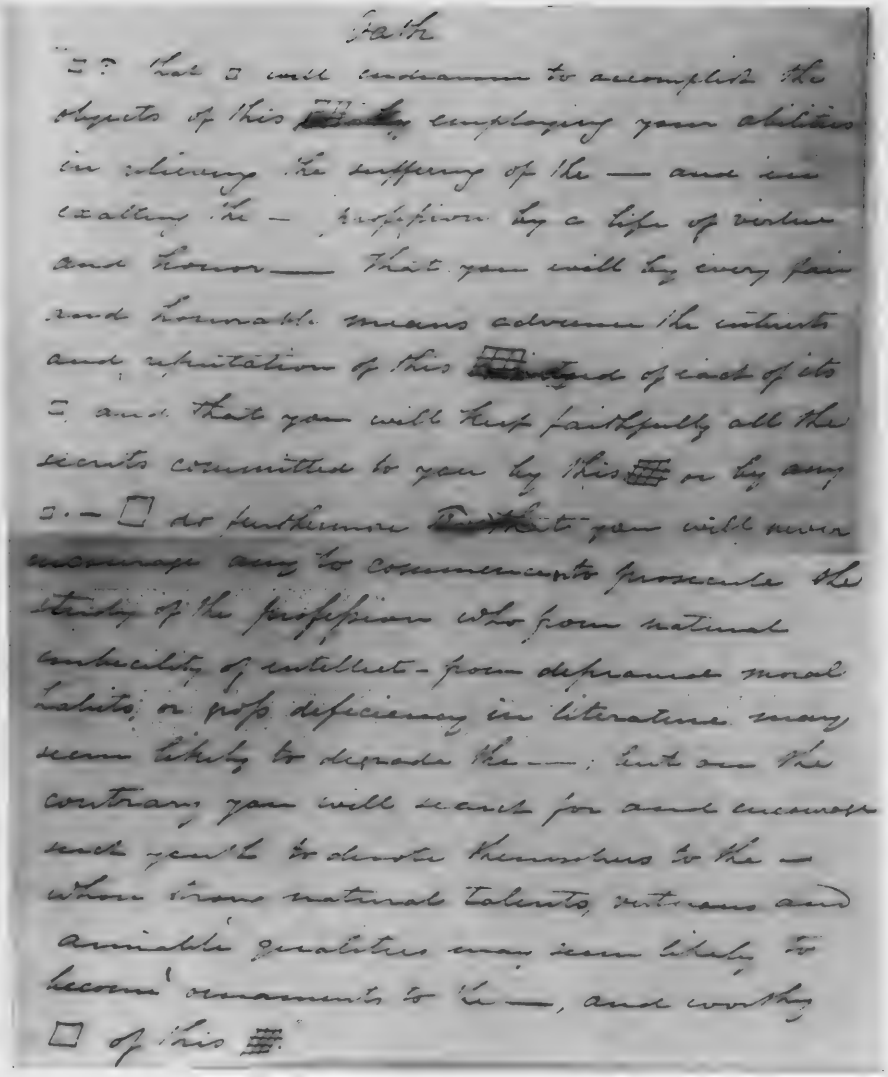
October 9, 1822 the minutes state

> The Committee appointed to propose a form of address to be used on the Introduction of New Members, reported one at length, which after being amended, was adopted.
>
> On motion it was resolved that said address as amended (the explanation of the symbols being omitted) be copied into the constitution book, and the *original draft be destroyed.* [Italics mine.]
>
> November 27, 1822. The committee appointed to draw up a form of an address to be delivered on the introduction of new members having stated that it required some corrections, resolved that the paper be referred to a committee consisting of the members originally appointed for the purpose of making the necessary additions and amendments.

December 11, 1822, this revised report was submitted and adopted, when it was resolved " That so much of said address as relates to the secret symbol of the society be dispensed with, and that the Presiding Officer be and he is hereby empowered to communicate the substance of the same to the newly initiated member at some convenient period of the meeting at which they are introduced or if deemed by him proper, to authorize some member to perform this duty."

The resolution of October 9, relating to the destruction of the original report was fortunately forgotten, for it is neatly docketed, November 27, 1822, and filed.

To return to the " verbatim " report of the ritual. On page 328 van Antwerp writes (in quotations) ; " Doctor, previously to either disclosing the secrets or explaining the objects of our Society, it is necessary that you be bound by a Solemn Oath. I am pleased to offer assurance that



Oath

□? That □ will endeavour to accomplish the objects of this [redacted] employing your abilities in relieving the suffering of the — and in exalting the — , by a life of virtue and honor — That you will by every fair and honorable means advance the interests and reputation of this [redacted] and of each of its □ and that you will keep faithfully all the secrets committed to you by this [redacted] or by any □. — □ & furthermore [redacted] that you will never encourage any to commence & prosecute the study of the profession who from natural imbecility of intellect — from depraved moral habits or any deficiency in literature may seem likely to degrade the — ; but on the contrary you will search for and encourage such youth to devote themselves to the — whose strong natural talents, virtuous and amiable qualities may seem likely to become ornaments to the —, and worthy □ of this [redacted].

FIG. 1
The Committee's original draft of the Oath.

no pledge will be required which is incompatible with your duty to God, to your country, *or to your other medical societies.* If you are willing to take such an oath, you will signify your willingness by saying 'I am willing.'" (Italics mine.)

There are two originals of this statement—one the report of the committee, and the copy ordered to be made in the minute book. Both are identical except for the unimportant change of the word "now" to "then." They both read:

> To satisfy the scruples of those, however, who may be opposed to take an obligation, with whose provisions they are unacquainted, assurance may be given that no pledge will be required which is incompatible with their duty to their God, to their country or to the *Society of which they are members.* [Italics mine.]

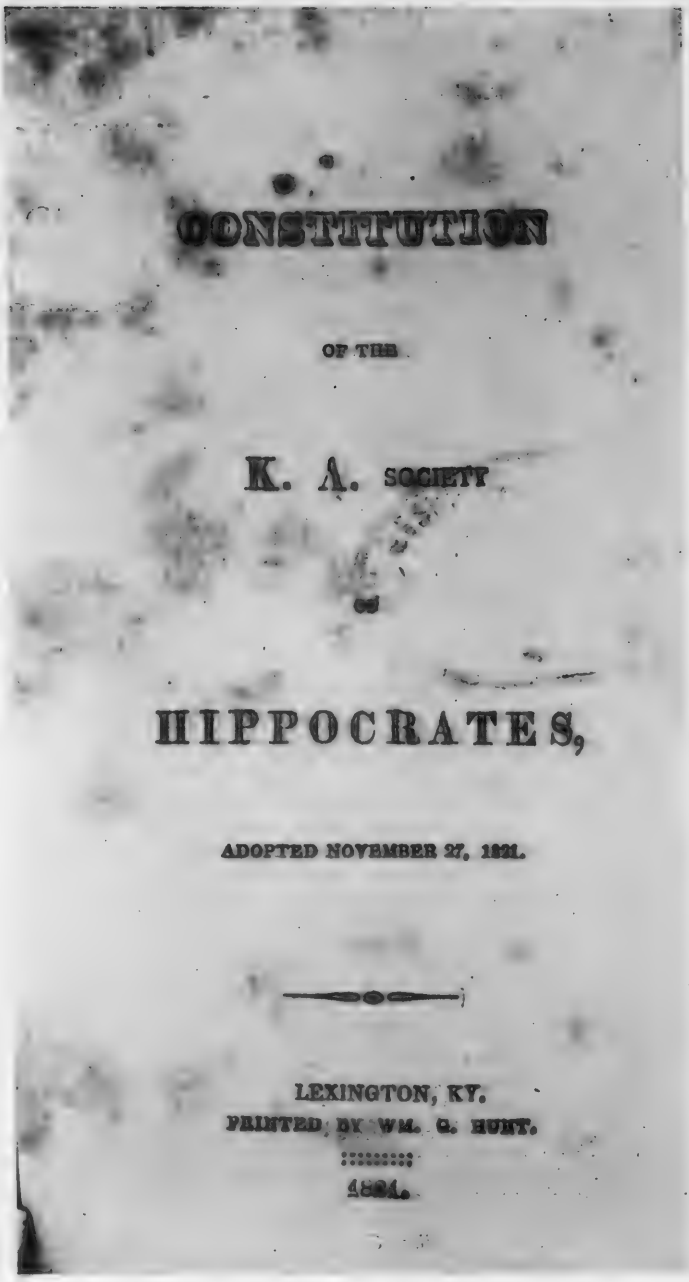
That is a very different statement from "*Medical Societies of which they are members.*" (Italics mine.) Also this author can find no mention in the records of "If you are willing to take such an oath you will signify your willingness by saying 'I am,'" as quoted by van Antwerp.

The original oath, as drawn up by the committee was very probably never used, much being cut out for simplicity. The original form as submitted and filed contains a number of short-hand signs and dashes, together with the use of the Cube or group of cubes which was adopted as its symbol. It is here given with the interpretation of signs and dashes (in brackets). A reproduction of the original is also given.

> (You swear) that (you) will endeavour to accomplish the objects of this (society) employing your abilities in relieving the suffering of the (poor) and in exalting the (medical) profession by a life of virtue and honor. That you will by every fair and honorable means advance the interests and reputation of this (society) and of each of its (members) and that you will keep faithfully all the secrets committed to you by this (society) or by any member. (You) do furthermore (swear) that you will never encourage any to commence or to prosecute the study of the profession who from natural imbecility of intellect—from depraved moral habits, or gross deficiency in literature may seem likely to degrade the (profession); but on the contrary you will search for and encourage such youth to devote themselves to the (profession) whose strong natural talents, virtuous and amiable qualities may seem likely to become ornaments to the (profession), and worthy (members) of this (Society).

It is here quoted as showing the importance to them of their main purpose, the elevation of the medical profession.

In his quotation of the address delivered by the President, Dr. Hewson, van Antwerp substitutes "respected" authorities for the usual form of


CONSTITUTION

OF THE

K. A. SOCIETY

OF

HIPPOCRATES,

ADOPTED NOVEMBER 27, 1821.

LEXINGTON, KY.
PRINTED BY WM. G. HUNT.
1824.

FIG. 2

Title page of the original Constitution of Kappa Lambda.

that day, "respectable." This is a minor point but the quotation is *not* verbatim.

On page 332 van Antwerp states: "As originally visualized by the founders, Kappa Lambda was to be a fraternity of graduate physicians and accredited medical students sworn to the deepest secrecy. It is the writer's belief, however, that few if any, students were admitted to membership."

The constitution of the Lexington Society, printed in 1821 [4] states

> Article 6, Election of Members, and Qualifications: Sec. 1. No person shall be a member of this Society who has not arrived to the years of discretion. He must also have attended, or be in attendance on, one course of lectures, in some respectable school of medicine; or have been in respectable practice of his profession at least four years; except in cases where there may be satisfactory evidence of medical attainments, commensurate with such advantages.

The second page of a circular printed by the Kappa Lambda Society of Lexington in 1822, gives the names of all members elected, in order of election, during its first three years (1820, 1821, and 1822). A copy of this is on file with the Philadelphia papers. They number 128, and the first name is that of Dr. Samuel Brown, the Founder of the Society. The list gives after the name, the State from which the member came. They are distributed as follows:

Kentucky	74	North Carolina	1
Tennessee	19	Ohio	1
Mississippi	7	Indiana	1
South Carolina	7	Ireland	1
Virginia	5	Not located	3
Alabama	4	"Deceased"	1
Missouri	4		

This seemed a very large number of *physicians* to have been reached in such a widely scattered area in a brief three years. The Transylvania Catalogue [5] records 83 of these names, graduating from one to two years after their election to the Society. Forty-five are not listed as graduates. The same pamphlet gives a brief history of the school in a supplement, which gives the number of students and graduates each academic year. The course was the usual two years of lectures. We give the figures in part:

[4] *Constitution of the* K. A. *Society of Hippocrates adopted November 27, 1821, Lexington, Ky.* Printed by Wm. G. Hunt, 1821. Photostat copy provided by the Library of the Medical and Surgical Faculty of the State of Maryland.

[5] *Transylvania Catalogue of Medical Graduates.* Lexington, Kentucky, Intelligencer Print. 1838.

CLASSES AT TRANSYLVANIA

	Students	Graduates
1819/20	37	7
1820/21	93	14
1821/22	138	51
1822/23	171	46

It is a well known fact that at that time many students attended the lectures at various medical schools and left without taking the trouble to get a degree, and incidentally pay the graduating fee. It perhaps explains why so many members of the Lexington Society—forty-five in number—were not graduates of the School.

It seems evident that Dr. Brown's original efforts were largely concentrated on taking in *students* and inculcating righteous principles early—" getting them young " as it were. As he resigned from Transylvania in 1825 and spent most of his time travelling around, it is not strange that the Society died out there, as it apparently did.

Van Antwerp is right, however, as far as the other societies of whom we have knowledge is concerned. The constitution of the New York Society as sent to the Philadelphia Society, in script,[6] states: " No person shall be admitted as a member of this association unless he shall have practiced medicine in this city at least one year, nor shall he be balloted for unless the officers are present."

Also the constitution of the District of Columbia Society[7] specifies: " Any practitioner of medicine who maintains a respectable moral and professional character " is eligible for membership if receiving a unanimous vote.

Speaking of the constitution of the New York Society, one of the charges brought against that society by the Committee of the Medical Society of the County of New York in 1831, was that a unanimous vote was necessary for election. They " only knew half of it." The constitution states " Any member may propose a candidate for membership in this Society and if he produce unquestionable testimony of his moral, literary, and professional respectability, such candidate shall be balloted for at *two* successive meetings of the Society, and if at *neither* there be a negative vote he shall be admitted as a member." (Italics mine.)

Van Antwerp quotes on pages 332 and 333 the " opening minute " of the Philadelphia Society, and again on page 336 he gives extracts from

[6] Manuscript letter with Philadelphia papers.
[7] Manuscript copy of Constitution with Philadelphia papers.

the further minutes. Under date of November 27, 1822 he states, "Dr. Thomas T. Hewson was elected president (The annual meetings were held in November and no mention of a president is made covering the period from the organization of the Chapter to this time . . .)."

This same minute, June 7, 1822, after stating that the gentlemen above mentioned, together with Dr. René LaRoche who was absent from the meeting, constitute the founders, continues as follows:

> The meeting having been called for the purpose of organizing a society in this city subordinate to the parent Society of Lexington, Kentucky,—it was determined to go into an election for officers; whereupon Dr. Hewson was called to the chair, and Dr. Harris and Dr. Gordon appointed tellers.
>
> The votes having been counted, the following members were declared duly elected to the several offices:
>
> Thomas T. Hewson, M. D., President
> Samuel Jackson, M. D. } Vice Presidents
> Thomas Harris, M. D. }
> Franklin Bache, M. D., Secretary
> J. H. Gordon, M. D., Treasurer.

The original constitution of the Lexington Society, printed in 1821, says nothing of Guardians. When it was first decided to have them we do not know. Dr. Brown was in close touch with the Philadelphia Society from its origin. It was not until January 8, 1823 that the subject was discussed, and June 11, 1823 that they were first elected.

In January 1825, their duties were further defined. "It shall be the duty of the Guardians to present to the Society at the first meeting in March, June, September and December of each year, a written report on the existing state of the profession; pointing out any malpractice or abuses, and the means by which they may be corrected, and suggesting also any general measures deemed by them well calculated to reform and elevate the character of the profession." This was ordered February 9, 1825.

But as early as December 1822 Dr. Hodges introduced a most remarkable resolution, seconded by Dr. LaRoche. It reads:

> That as the object of this Society is to improve the character of the Profession, by consolidating the exertions of its virtuous and honorable members, and by forming a body which shall be remarkable for its regular upright and virtuous conduct, a standing committee of two persons be appointed annually, or semi-annually,—by ballot, whose duty it shall be to watch over the conduct of all the members of the Society; and should they see or hear of anything being said or done, which is likely to injure the respectability of the profession, directly or indirectly, or which violates any of the principles or rules by which we profess to be

EXTRACTS

FROM

THE MEDICAL ETHICS,

OR,

A CODE OF

INSTITUTES AND PRECEPTS,

ADAPTED TO THE

Professional Conduct

OF

PHYSICIANS & SURGEONS,

IN PRIVATE OR GENERAL PRACTICE.

By THOMAS PERCIVAL, M. D.

F. R. S. & A. S. LOND. F. R. S. & R. M. S. EDINB. &c. &c.

LEXINGTON:

Printed by T. SMITH, *at the Reporter Office.*

1821.

FIG. 3

Photostat copy of the Lexington Imprint of Extracts from "Medical Ethics" of Thomas Percival. *From the Library of the Surgeon General.*

guided, that it shall be their duty to notice such transactions, either in conversation, or in any other way, judged proper; and should the member thus offending prove refractory, and the subject be deemed of sufficient importance, that it shall be reported to the Society for their decision.

This resolution was *not* passed!

That in 1821 the Lexington Society published extracts from the *Code of Medical Ethics* of Thomas Percival, published in England in 1803 we know. Van Antwerp mentions in a footnote page 338, that the copy in the Welch Library has the name of the Society, place of publication, and printer's name cut out. A photostat of the copy in the Surgeon General's Library shows a small piece of the page cut out; but the place and printer's name are there. Probably the name of the Society was torn out. Also the copy thought to be the Lexington Issue in the Library of Tulane University of Louisiana has the whole lower third of the page cut off.[8] These three copies are the only ones we have heard of. As they are rare and that from the Surgeon General's copy is the most complete, we reproduce the title page.

We know that copies of it were received from the Lexington Society, by the Philadelphia Society, and twenty were sent to the New York Society from Philadelphia. In 1823 the Philadelphia Society published its own edition modified from the Lexington Edition, and again in 1829 another lot was printed without any changes.

Dr. McDaniel called this author's attention to the only other "extracts" that he has heard of. It is particularly interesting as showing that Kappa Lambda Societies probably existed for many years in places never known to have had a Society. The first page of the Extracts adopted by the "K. L. Society of Hippocrates located in Fayette, Miss., 1854"[9] is reproduced as a rare and interesting item.

Under date of August 8, 1826, van Antwerp records, "Resolved that the Secretary be instructed to write to the Secretary of the Lexington Kappa Lambda Society and inform him of the inconveniences to which we have been subjected by the indiscretion of some members of that society and to request information whether secrecy was still enjoined upon the members." He does not mention the first complaint of the Society on that score dated December 24, 1823: "Dr. Rhees moved and it was seconded that the Society views with disapproval the usage of some of the members of the K Λ institution of attaching to their names the title of K Λ."

[8] Letter from Mary Louise Marshall, Librarian, December 4, 1941.
[9] Photostat copy from the Library of the Philadelphia College of Physicians.

Prof. Medical

DR. PERCIVAL'S CODE

OF

Medical Ethics;

ADOPTED BY THE

K. L. Society of Hippocrates,

LOCATED IN FAYETTE, MISS.

1-8-5-4.

I. PHYSICIANS and SURGEONS should minister to the sick, with due impressions of the importance of their office reflecting, that the ease, the health, and the lives of those committed to their charge depend on their skill, attention, and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *steadiness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect, and confidence.

II. Every case, committed to the charge of a physician or surgeon, should be treated with attention, steadiness, and humanity: reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed: and the familiar and confidential intercourse, to which the faculty are admitted in their professional visits, should be used with discretion, and with the most scruplous regard to fidelity and honour.

III. The strictest *temperance* should be deemed incumbent on the faculty; as the practice both of physic and surgery at all times requires the exercise of a clear and vigorous understanding: and on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being, and even to the life, of a fellow creature.—

FIG. 4

First page of the Fayette, Mississippi, edition of Percival's Ethics.

In 1823 appeared *A Treatise on Diseases of the Eye etc.*, by George Frick, M. D. of Baltimore, and under his name appear the letters "K A of H." In a letter to this author dated December 11, 1941, Mrs. Charles F. Norton, Librarian of Transylvania College, called his attention to this book, which, she reported Dr. Francis R. Packard as saying, was the only instance of which he had ever heard of its being done. If so, it is worth reproducing.[10] In the second Edition, published with notes by Richard Welbank, in London, 1826, these letters do not appear. Dr. Frick received his M. D. from the University of Pennsylvania in 1815, and was admitted as a licentiate of Medicine into the Medical and Chirurgical Faculty of Maryland in 1817.[11] He may have been one of the members of the Baltimore Society which we know was "going into operation" in May 1823. He was a distinguished ophthalmologist.

As van Antwerp shows, the Philadelphia Society were early dissatisfied with the constitution, and as early as October 1822, a committee reported:

> . . . that the constitution, adopted by the Lexington Society, however proper for the necessity of the case, to be adopted as a rule of conduct for the first Societies, emanating from that association, cannot be considered as a code of principles and regulations, fitted to govern the K A Society, considered as a great fraternity of Physicians, pervading all parts of the United States. As your committee therefore, hopes, that a constitution will be shortly drawn up on broad principles, calculated for the general society, and which will be submitted to the different local societies, now existing for their approval,—they are of the opinion, that it would be inexpedient to print the constitution of the Lexington Society, with a view to answering the purposes of a general code; thereby incurring expense, and the danger of revealing our peculiar principles and views, without a sufficient motive . . .

At the same meeting a committee was appointed to correspond with the Lexington Society regarding a new constitution.

At the meeting of March 27th 1823 the Society heard a lengthy and detailed report as to why the constitution was not satisfactory.

They apparently had not as yet received a printed document of December 11, 1822. What they thought of it when they did receive it, is not known. That document of December 11th, describing their ambitions, particularly that of the Founder, is worth quoting, in spite of its length.

> At a meeting of the K A Society of Hippocrates, held in the Medical College of Transylvania University, December 11, 1822, the following resolutions were introduced by Dr. Henry Miller, and referred to a select committee, of Doctors Brown,

---

[10] From the Library of the New York Academy of Medicine.

[11] Kelly and Burrage, *American Medical Biographies*, 1920.

A

TREATISE

ON THE

DISEASES OF THE EYE:

INCLUDING THE

Doctrines and Practice

OF THE

MOST EMINENT MODERN SURGEONS.

AND PARTICULARLY THOSE OF

PROFESSOR BEER.

BY GEORGE FRICK, M. D.

K A of H.

Opthalmic Surgeon to the Baltimore General Dispensary

2940

LIBRARY

Baltimore:

PUBLISHED BY FIELDING LUCAS, JUN.

JOHN D. TOY, PRINTER.

1825.

FIG. 5

Title page of the First Edition of Frick's *Treatise on the Diseases of the Eye*, with KA of H under the author's name.

Sanders, Stout, Briggs, and Humphreys, who reporting favourably, they were unanimously adopted, and ordered to be printed, with a list of the names of all who have been initiated in the parent society.

The omniscience and omnipotence of the great *primitive* Author of nature are alone adequate to the construction of plans, which shall be adapted to every exigency, and the unceasing mutations, which are perpetually going on in the moral and physical world—while the purblindness of man compels him to accommodate his arrangements to present and surrounding circumstances, and by the instructions of experience he must profit if he would advance the offspring of his invention to the greatest possible perfection.

It is, therefore, no disparagement to the worthy gentlemen, who framed our Constitution, that experience has shown its incompetency to the government of our flourishing and invaluable institution. That its dissemination may be commensurate with the immense blessings, which it is destined to dispense, that its great objects may be promoted, and harmony and unanimity of feeling cherished among its members, a new code of regulations, nay, a radical revolution in its organization is imperiously demanded. The essence, the soul and the spirit of the institution ought to be sacredly guarded against innovation, even under the mask of expediency or improvement. But whenever its system of government shall prove defective, and its operation impracticable, it is our right, nay, our duty, to commence the work of amendment and reformation.

Under the present Constitution no K A is entitled to establish a subordinate society, unless invested with a warrant or charter, from the mother society, held in Lexington, Ky. If we could entertain such limited views of our institution, as to suppose that no person will be admitted to its privileges, but those who attend on the lectures of Transylvania University, or who may chance to visit Lexington, this provision might be regarded as unexceptionable, because there could be no difficulty in procuring legal authority for the establishment of subordinate societies. But when we reflect that by each subordinate society, throughout the world, there must be innumerable initiations, we, at once, perceive the impracticability of its members obtaining the sanction of *this* society, to locate subordinate ramifications. When the period, which we trust is not far distant, of the *universal* prevalence and triumph of *primitive* principles, shall arrive, this part of our Constitution will be futile and inoperative. As well might the Grand Lodge of the most ancient and honorable Society of Freemasons, at Jerusalem, or at York, assert and maintain the sole prerogative of issuing charters for the creation of subordinate lodges, which are now implanted in every country, where civilization has extended.

Added to these, there are other considerations which induce us to desire a change in the organization and government of the K A institution.

One of our leading and cardinal objects, as is very well known to you, is the acquisition of *authentic* medical information.

But, besides the impracticability of compliance, it would manifest a spirit of monopoly, to require that the observations of every K A, throughout the globe, shall be directed to the parent Society, at Lexington! No! let us not, by the assumption of such superior claims, evince an avaricious and domineering disposition.—The measure of our fame is full, in originating the institution, or rather

in being the first to reflect the beams of *Science*, *Friendship*, *Virtue*, and *Honour*, emanating from the Coan Sage; and let us, like true philanthropists, consent that every region of the Earth, warmed and animated by their immediate presence, shall feel and acknowledge the genial influence!

To remedy the imperfections, which have been adverted to, and to advance, as I conceive, the real and permanent interests of the institution, the adoption of the following resolutions is recommended.

Resolved by the parent K Λ Society of Hippocrates, held in Lexington, Ky.

1st. That in each of the United States, and in other governments, there shall be a grand K Λ Society, composed of the Presidents of the subordinate societies, in said state or government.

2d. When a grand society is organized in any state or government, said society shall hold a grand annual communication.

3d. The officers of said grand societies shall be a grand President, two grand Vice-Presidents, a Secretary, a Treasurer, a grand Pursuivant and Grand Orator.

4th. That each grand K Λ Society shall be amenable to no other assembly of K Λ's (unless hereafter it may be deemed expedient to establish a general grand K Λ Society of the United States,) but shall possess supreme authority over the subordinate societies, under its jurisdiction, and shall have power to issue charters for the creation of subordinate societies, and to frame its own constitution and bye-laws, consistent, however, with the spirit and intention of the institution.

5th. That, during the recess of the grand K Λ Society, the grand President, or either of the Grand Vice Presidents, shall have power to grant charters to worthy and respectable applicants.

6th. That, as the great advantages, which are expected to result from the establishment of grand K Λ societies, are the promotion of medical science, and the cultivation of friendly and brotherly feelings between the practitioners of different districts and states, and as these purposes would be very partially achieved by the congress of a few members, it shall be left to the determination of a majority of the subordinate societies in any state or government, to appoint the time and place of convening a grand K Λ society; and until this is done, the *first* K Λ society established in said state or government, shall be considered the grand K Λ Society, and exercise all the functions, which other grand K Λ societies may.

7th. That the constitution of every grand K Λ society require that its subordinate societies meet as often as may be considered necessary, and refer to select committees the communications of its members, and forward on to the grand K Λ Society, at its grand annual communication, such reports of interesting cases of disease, or of important discoveries in the science of medicine, or any of its collateral branches, as said committees shall pronounce valuable and honourable to the Society.

8th. That each grand K Λ Society preserve such reports in the archives of the institution, and when they consider the collection worthy, give it publicity, in a volume, or in the K Λ or some other journal of medicine.

Resolved further, that the K Λ societies, already existing, be informed of these resolutions through the medium of printed circulars, and have them published with their constitution:—because, as these provisions are intended to protect the

general interests, and establish identity of character and object, in all K A Societies, they are considered paramount to grand Constitutions, and obligatory on all K A's throughout the world.

The introducer of this grandiloquent resolution was Dr. Henry Miller. He was elected in 1820 and graduated in 1822.

The "select committee" were "Doctors" Brown, Sanders, Stout, Briggs and Humphreys.

Dr. Brown was without much doubt Samuel, the founder, although there was another member named Brown from Mississippi; elected in 1822, not listed as a graduate.

It's a little difficult to identify the others. There were three Sanders elected, all in 1822: J. H. from Kentucky, graduating in 1823; B. P. from Kentucky, graduating in 1825; and Thomas from Virginia, graduating in 1824.

Of Stouts there were two; B. C. from Tennessee, elected 1820 and graduating in 1821; and O. H. of Kentucky, elected in 1821 and graduating in 1823.

Of Briggs there were also two, both from Kentucky and both elected in 1820; J. M. graduating in 1821 and E. L. in 1823.

Of Humphreys there were again two, both of Kentucky; J. H. elected in 1821, graduating in 1823; and Alexander elected in 1822, and graduating in 1824.

Therefore, of the four names, only two could possibly have been graduates, B. C. Stout, from Tennessee, and J. M. Briggs from Kentucky. It is possible they were members of the "Select Committee," but it is more likely that all four were undergraduates, although they are called "Doctors." The language suggests Dr. Samuel Brown as the writer.

The reaction of the Philadelphia Society to this document, was to write their own constitution, which was adopted April 9, 1823. It starts with a preamble occupying more than two long closely written pages, and then a sort of Bill of Rights of Medical Practitioners. It is too long to produce here. The interesting point is that they adopted the title of "K A Association of Pennsylvania." Hippocrates is forgotten!

The first action of the Society in Philadelphia to remove the injunction of secrecy was a motion by Dr. Meigs, April 11, 1827: "Resolved that the injunction of secrecy in regard to the existence of the Society be repealed and the same is hereby repealed." This motion was laid on the table but it was passed July 11, 1827, and became effective in September. At the September 12th meeting Dr. Bell moved a committee be appointed

to report on what were the general objects of the Society, which of them was to be kept secret, and what other things were also not to be spoken of. Van Antwerp summarizes it in seven lines, but this author thinks the printed copy, for distribution to members, is worth preserving:

PRIVATE

The Committee, in obedience to a requisition of the Society, that they should specify the leading objects to which, simultaneously with the promulgation of its existence, publicity may be given, and state at the same time to what extent the injunction of secrecy ought to be still binding on all its members, beg leave to report, after due deliberation; their opinion, that each member has a right in avowing the existence of the K Λ Society of Philadelphia,

1st. To announce, whenever he may deem it proper, his own connection, and that of his fellow members, with such society:

2nd. To acknowledge the printed extracts from Percival's Medical Ethics, and the amendments and alterations thereof duly adopted, as the Code of the Society, for the regulation of medical etiquette, and that by which he, as a member agrees to be governed:

3rd. To state the origin from, and connection with, the Society of the North American Medical and Surgical Journal.

4th. To refer to the scale of compensation for medical services adopted by the Society, as that by which he is regulated, and to which the restrictions duly specified, he is bound to adhere.

The committee is also of the opinion, that the Society has a right and ought to enjoin of its members secrecy in respect to the constitution and by-laws and all matters of government, either as regards officers or the nature and extent of their functions. All discussion past and future, other than on medical subjects, at the meetings of the Society, are in like manner, as heretofore, only to be spoken of among members.

The existence of other societies is not to be promulgated by this Society, unless the former have, or shall have removed the injunction of secrecy by which they were respectively bound.

Finally—All matters, not herein enumerated, are to be kept secret, until the society shall deem it proper to give them publicity.

George B. Wood
John Bell
Franklin Bache.

Philadelphia, September 28, 1827.

This action was probably taken in order to make the statement appearing in the October 1827 number of the North American Medical and Surgical Journal. Until after the appearance of that number, it was "conducted by Hugh L. Hodge, M. D., Franklin Bache, M. D., Charles D. Meigs, M. D., B. H. Coates, M. D. and R. La Roche"—with the motto,

as always, "Non Doctior, sed meliore imbutus doctrina." The next number is "published by the Kappa Lambda Association of the United States" without the names of the Editors.

The journal was the great interest of the Philadelphia Society. As stated, it was originally "conducted" by five individual physicians. It seems reasonable that the society may have felt that as an official publication of a medical society, it would have more prestige than as one conducted by five individuals. It was always in financial difficulties, and on several occasions the society came to its rescue with a contribution from its general funds.

Van Antwerp records under date of July 11, 1827, that the Lexington and New York Societies be informed of their action in regard to removal of the secrecy as to the name and existence of the Society, and under September 12, 1827, that the Secretary was instructed "to answer the letter received from the New York Kappa Lambda Society and to inform them that the society had determined to acknowledge its existance but that in doing so it would not compromise them."

It seems to this author that the letter from the New York Society, which called forth the assurance that the Philadelphia Society would not "compromise" them, is worth quoting, for record. Under date of August 22, 1827, it wrote.

Dear Sir

In answer to your communication of June 12th I am directed by the K Λ Society of this City to transmit the following resolution passed at a late meeting—

Resolved that the Corresponding Secretary of this Association be directed to inform the K Λ Society of Philadelphia that this Society having from its origin to the present time proceeded prosperously and harmoniously in the objects for which it was instituted deems it inexpedient to make any change, and be it further resolved that the Corresponding Secretary be directed to express the wish of this body to the K Λ Society of Philadelphia that in any steps which it may see fit to take with regard to itself, nothing in reference to this Society may through its agency come before the public.

Yours Respectfully.

F. U. Johnston
Cor. Secy. N. Y. K Λ Society

Isaac Hayes, M. D.
Secy. Phil. K Λ Society.[12]

The last nine pages of van Artwerp's article are taken up with the affairs of the New York Society together with an account of the Rutgers Medical Faculty, only the last phase of which has anything to do with

[12] This is part of the Philadelphia papers.

Kappa Lambda. In his account he gives no new information,—simply rehashes the charges made by the Medical Society of the County of New York in 1831, and attacks in the journals of that time and later.

On page 342 he states: " Probably there is little doubt but that the history of the New York group is not particularly savory and if all of the allegations are true, its activities were most unethical and deserving of the severest criticism. The evidence against them is particularly damning but the reader must remember that it is gathered from unfriendly sources. The fraternity itself, never, at any time, offered any rebuttal to the claims made against them except *one which is patently false*." (Italics mine.)

What is that " rebuttal " which is " patently false "? The only statement he quotes, is that in the letter of thirteen of the physicians claimed by " Medicus " (Dr. John Stearns) to be members of the Society; " The statements contained under the signature of Medicus . . . representing the existence of an association of medical men in this city, formed for purposes dishonorable to themselves and injurious to the profession, are totally without foundation." He then quotes Dr. Stearns' reply " I with pleasure acknowledge that I have hitherto entertained an erroneous belief of the objects of the association, and regret the effects of the unfavorable opinion I have expressed on that subject." Does the statement of the thirteen physicians deny the *existence* of the society by saying his charges are " totally without foundation "? As van Antwerp says of the whole matter of the New York Society, " The evidence is presented to the reader who must decide for himself," but he expresses *his* opinion in no uncertain manner.

The author, after quoting the letter from the New York Society to the Philadelphia Society, announcing its formation, with its officers and members, states " until 1829 the affairs of the chapter remain hidden except for regular and uninformative notations in the minutes of the Philadelphia Society." There are also on file among the Philadelphia papers the following letters from the New York Society:

May 12, 1824, regarding the proposed journal.
June 3, 1824, inclosing a copy of the constitution of the New York Society.
Dec. 6, 1824, Names of members added since last report and list of officers.
Jan. 21, 1825, regarding the journal.
Nov. 15, 1825, regarding journal with list of 16 of its members who will subscribe.
Dec. 26, 1826, List of members and officers.
Aug. 27, 1827, regarding secrecy (already quoted).
Dec. 26, 1831, request for name of secretary of Philadelphia Society.
June 24, 1832, list of officers and members.

It is true that very little is known of the New York Society, but *something* is known, which neither Leake or van Antwerp tells us.

The report of the Medical Society of the County of New York in 1831 is the main source material in van Antwerp's report. He quotes, on page 345 the charge that the New York Society was appropriating to itself almost all the professional offices in the City, to their own advantage, prefacing it with these remarks: "The one pithy section of the committee's report is that dealing with identity of the members of Kappa Lambda among the city's professional offices. *It is such undeniable evidence* of an attempt to accumulate these offices to themselves that it is quoted here at considerable length." (Italics mine.)

His "undeniable evidence" consists of the following:

1. Six of the seven members of the Attending Staff of New York Hospital were members of Kappa Lambda. Dr. Mott, appointed before its organization, was not.
2. Five of the Consulting Staff of the New York City Dispensary were Kappa Lambdas.
3. With two exceptions, the Physicians of the Lying-In Establishment were Kappa Lambda members.
4. One member of the "Magdalen Asylum" was a member of Kappa Lambda and had previously been on the staff of the Alms House and Attending Physician to New York Hospital.
5. The President (before his death) and four professors of the Medical College were members, as were two-thirds of the Medical Trustees.

As the late ex-Governor Alfred E. Smith used to say, "let's look at the record."

Printed reports of the New York Hospital show [15]

Alexander Stevens—appointed Surgeon 1817.

Thomas Cock, House Surgeon 1804-1805—appointed Physician 1819.

John C. Cheesman, House Surgeon 1811-1812—appointed Surgeon 1821.

John K. Rodgers, House Surgeon 1816-1817—appointed Surgeon 1822.

F. U. Johnston, House Physician 1819-1820—appointed Physician 1828.

J. M. Smith—appointed Physician 1829.

[15] The Society of the New York Hospital, 159th Annual Report for the year 1930.

Besides Dr. Mott, therefore, four of the six were appointed before Kappa Lambda was established. We might almost as fairly claim the New York Hospital was trying to monopolize membership in Kappa Lambda!

Next comes the City Dispensary. (Its name was the New York Dispensary.) Unfortunately the printed roster of the Staff does not mention Consultings,[14] but at least three of them, Cheesman, Stevens and Moore, were previously Attending Physicians.

Is it strange that three of the Staff of New York Hospital, the only real hospital in the city, should have been appointed consultants? Dispensaries and hospitals too, have always been anxious to place the most distinguished names on their list of Consultants.

As to the Lying-In Establishment. It was opened in November 1823—the year Kappa Lambda was established in New York. The original Consultings for their institution[15] were Gilbert Smith, Thomas Cock, Peter C. Tappan, A. W. Ives, Robert Watts, J. C. Bliss and F. U. Johnston, and Benjamin McVickar and George Wilkes Attendings. It is interesting to note that among the Managers are to be found. " Mrs. Dr. Smith," " Mrs. Dr. Cock," " Mrs. Dr. Tappan," " Mrs. Dr. Ives." The ladies organized the institution—there were no male Managers. It was a new institution. The first few years of its existence the Asylum was lodged in a special ward of the New York Hospital. Tappan and Cock were Attending Physicians to the Hospital.

As to the " Magdalen Asylum " this author has not been able to identify it.

When we come to the history of the College of Physicians we come to a very complicated situation, which began from its very foundation in 1807. When the New York County Medical Society was organized in 1806, they looked around for a home—and cast longing eyes on Government House, and after a Committee conference with the New York Historical Society, the Academy of Arts and the Library Society, they decided to jointly apply to the Legislature for its use " as a depository of Arts and a place of Science."

This committee reported back to the Medical Society that it was its opinion " that it might insure success in obtaining the use of Government House for the Society, if the Society were incorporated as a College of

[14] 110th Annual Report of the Board of Trustees of the New York Dispensary for the year 1899.

[15] *1st Report of the Managers of the New York Asylum for Lying-In Women*, June, 1824.

Physicians and Surgeons in connection with the Regents of the University of the State."

This caused much discussion but the Society finally voted to memorialize "The Honorable the Legislature" and the Board of Regents to that effect, and entrusted the matter to their Delegate to the forth-coming meeting of the State Society, Dr. Nicholas Romayne, who had done some teaching himself in the past, as noted by van Antwerp. A few months later Dr. Jotham Post moved that the action taken by the Society relating to a College of Physicians be rescinded. The motion was lost, and then the returned Delegate reported that he had taken the matter up, and exhibited the Charter for the College, dated March 12, 1807!

By the terms of that Charter the entire Society numbering 139, became Trustees of the College, were to elect its officers annually, and were to be responsible for its conduct, the Regents retaining the power to appoint the Professors and give the degrees. Dr. Romayne was appointed President by the Regents. But within the year the Regents, probably at the instigation of Romayne, changed the Charter, taking into their own hands the appointment of officers, and requiring that members of the Society who wished to serve as Trustees must state in writing their desire to do so and promise to fulfill their duties faithfully and diligently. The relations between the Faculty and Society were stormy from the very beginning, and there were constant charges made by the Professors against the Trustees and vice versa.

In 1812 a new charter was granted, in which the Trustees were reduced to twenty-five, the members of the Faculty being ipso facto Trustees. In 1814 the College added to its faculty the members of the Medical Department of Columbia, the professors now numbering twelve. The bickerings and quarrels continued and finally the County Society re-entered the arena, and petitioned the Regents to investigate the condition of affairs. They called attention to the fact that the student expenses for an education had risen from the original $40 in 1807, to $183 in 1818. More charges and countercharges, and finally in 1826 the Faculty resigned in a body, took all their belongings away from the College building and formed the short lived "Rutgers Faculty."

A committee of the Trustees reported after a visit to the college building that it had the appearance of a "city sacked and deserted by a ruthless enemy." [16]

[16] Minutes of the Medical Society of the County of New York. The description of the college building is from E. B. Dalton, *History of the College of Physicians and Surgeons*, 1888.

In other words, the County Society was divided into two groups, pro-college and anti-college.

Returning, after this digression, to the last charge of the Society that the late president and four members of the Kappa Lambda Society were professors, let us again " look at the record."

John Watts, late President, had been a Trustee since 1820, as a representative of the County Society.

Alexander Stevens, long connected with the New York Hospital, and admittedly a distinguished surgeon before Kappa Lambda was established.

Joseph M. Smith, a graduate of the College of Physicians and Surgeons, known on both sides of the Atlantic for his *Elements of the Etiology and Philosophy of Epidemics* (1824), which a British reviewer described as " characterized by not only great ability and force of argument, but also by candour and talent, doing honour to American Medicine." He had been Visiting Physician to the State Prison, where he fought the Typhus Epidemic which broke out there in 1825, and in the Alms House. " Forty years a public teacher of medicine, forty-six years constantly concerned in the active duties of public hospitals; for more than thirty-six years a consulting physician whose practical advice was widely sought by his confreres." So was he described.[17]

John Torrey, for three years previous to his appointment as Professor of Chemistry, in 1827, Professor of Chemistry, Geology and Mineralogy in the United States Military Academy at West Point.[18]

On page 349 van Antwerp says " Leake states that they sent a delegate to the National Medical Association in Washington in 1858 but the writer is unable to verify his authority and is inclined to believe him in error." This author can find no such statement in Leake's article. He reproduces the " First Page of the 1858 Report of the 1831 ' Report ' to the New York Medical Society " which starts off, " This secret Society Kappa Lambda, with additional members, is still in active operation in this City, and continues to make the effort to control the Medical Institutions, and has become bold enough, by its success, to send in 1858 a delegate to the National Medical Association at Washington City."

The fact that they did so is very easily verified. The printed Transactions of the American Medical Association give each year a list of accredited delegates. Its delegate in 1858 was Dr. John G. Adams. Further, the New York Kappa Lambda Association is credited with one

[17] Kelly and Burrage, *American Medical Biographies*, 1920.
[18] J. C. Dalton, *History of the College of Physicians and Surgeons*, 1888.

or more delegates every year from 1848 to 1858 inclusive, except in 1854, when the meeting was held in St. Louis, and 1857, when it was held in Nashville, Tenn.

And van Antwerp states (page 349), "We are left entirely uninformed as to the length of its life in New York . . . So strong was the opposition to Kappa Lambda in 1838 that it is unlikely that it was able to maintain its power for very long after that time. It is most likely that it gradually lost power and died of inanition as did the Philadelphia Chapter a few years earlier." (1835)

In 1862 appeared the first volume of the *Medical Register of the City of New York*, which gives a partial list of important medical societies.

New York Kappa Lambda Society of Hippocrates.
Founded in August 1823. Stated meetings are held on the third Thursday of each month, at the residences of the members. Anniversary is in October. Present number of members is about 24.

OFFICERS FOR 1862.

James L. Phelps, M. D., President.
Jared Linsly, M. D., Vice President
Alfred C. Post, M. D., Treasurer
Timothy M. Cheesman, M. D., Corresponding Secretary
Gouverneur M. Smith, M. D., Recording Secretary

SUCCESSION OF PRESIDENTS.

1823.	Alex. H. Stevens, M. D.	1843.	J. Kearney Rodgers, M. D.
1825.	Gilbert Smith, M. D.	1845.	Isaac Wood, M. D.
1827.	Thomas Cock, M. D.	1847.	James C. Bliss, M. D.
1829.	John Watts, Jr., M. D.	1849.	Alfred C. Post, M. D.
1831.	Joseph M. Smith, M. D.	1851.	Gurdon Buck, M. D.
1833.	Ansel W. Ives, M. D.	1853.	J. Hallett Borrowe, M. D.
1835.	Nicoll H. Deering, M. D.	1855.	Henry D. Buckley, M. D.
1837.	Jno. C. Cheesman, M. D.	1857.	Edw'd L. Beadle, M. D.
1839.	Rich'd K. Hoffman, M. D.	1860.	Thos. F. Cock, M. D.
1841.	Francis U. Johnston, M. D.	1862.	James L. Phelps, M. D.

(The names of all the members, from the foundation of the Society will be given in the next volume.)

Unfortunately the Editor, Dr. George H. Tucker, died soon after this appeared. It was not published again until 1864, when this note appears:

New York Kappa Lambda Society of Hippocrates.
No meetings have been held since the publication of this work in 1862.

It is safe to say that 1862 is probably the year of its ceasing to exist as a Society.

In 1839 the *New York Journal of Medicine and Surgery* made its first appearance. It lasted two years. In its numbers appear a fairly complete report of the meetings of the Kappa Lambda Society. It was holding regular meetings devoted to medical discussion of cases.

In the report of the meeting of October 30, 1839, after naming the officers elected for the year, is this statement:

> Resolved: That at any regular meeting of the Society, the gentlemen at whose house the meeting is to be held, may have the privilege of inviting medical men who are not members of the society, and that other members may have the same privilege, on application to the gentleman at whose house the meeting is to be held, it being understood that the whole number invited at any one meeting shall not exceed three.

The only publications of the New York Society of which this author has knowledge are three. In 1832 New York was threatened with an epidemic of cholera. The city was much disturbed. In June 1832, only a year after the County Society's onslaught, appears

Report of the Committee of the K Λ *Society appointed for the purpose of preparing an account of the Mode of Treatment of Epidemic Cholera.* June 1832, New York; printed for the society.

An *Additional report, Presented Aug 15, 1832,* was published "by order of the Society" later the same year.

The third is entitled *The Beloved Physician; a tribute to the memory of James C. Bliss, M. D. A discourse on the combined influence of the Gospel and the Medical Profession in forming the character.* By Joel Parker, D. D. pastor of the Fourth Avenue Presbyterian Church. Published by the Kappa Lambda Society. New York. Samuel S. and William Wood, 200 Pearl Street, 1856.

In closing this somewhat rambling and disjointed statement, this author wishes to make one final remark. He thinks the closing paragraph of van Antwerp's article unfair and unjustified. He presents no new evidence of any kind as to the baleful influence of the New York Society. His article is full of statements derogatory to the New York Branch, many of which have been quoted. The final paragraph reads as follows:

> It appears certain that neither the founders nor the members of any other Chapter used the afforded secrecy for personal gain; that it was so used in New York seems certainly to have been a misdirection of its possibilities by men who would have found some other medium for gaining their ends had they been denied this attractive and effective medium.

This author is fairly familiar with the medical records of E. L. Beadle,

James C. Bliss, Gurdon Buck, Henry D. Buckley, Thomas Cock, Thomas F. Cock, Richard K. Hoffman, Francis U. Johnston, Jared Linsly, James Macdonald, Alfred Post, John K. Rodgers, Gilbert Smith, Joseph M. Smith, Alexander Stevens, John Torrey, John Watts, Jr., and Isaac Wood. They were all respected physicians of their day. He does not believe that they combined for any dishonorable or improper purpose, or that they " used the afforded secrecy for personal gain."

The documents in the Philadelphia College of Physicians Library offer a rich field for study of a most interesting phase of American medical practice. No one has written a scholarly history of *Medical Practice*. There is a crying need for such a study, and one large and interesting field will be an unbiased analysis of the activities of the Kappa Lambda Society of Hippocrates.

SIGNIOR BRABANTIO'S HUMOR

JOHN W. DRAPER

The first act of *Othello* is almost entirely Shakespeare's own; and the Italian novel that he used as a source of the play has a mere allusion to Desdemona's parents as opposing her marriage to the Moor. The picture of Brabantio, therefore, the father of Othello's Venetian bride, is completely Shakespeare's, and in its lofty dignity suggests the portrait of a Venetian senator by Tintoretto that hangs in the Frick Gallery in New York. Brabantio is a powerful magnifico: even Iago says that his influence equals that of the Duke; and Shakespeare depicts the Duke as a sovereign autocrat.[1] Indeed, Brabantio's personality is aristocratic and dominating: he gives his servants orders as if he were used to being obeyed: "Strike on the tinder, hoa . . ." and he thinks nothing of breaking into the session of the council. Choler was the humor of men in great place, kings, courtiers and the like. Brabantio has not the martial choler of drunkards and soldiers, but the choler of the sun,[2] which gave one "liberalitie" and "a good grace";[3] and, though Brabantio can be sharp with Roderigo, and insulting with Othello, he can speak to the Doge and Senators with all fit decorum. Brabantio's social caste, therefore, would suggest that he was the sun's man by nature, and accordingly mildly choleric.

The traits of character that his part implies support this inference. Among the causes or the psychological accompaniments of choler, Downame[4] and Huarte[5] mention "pride"; and Brabantio, as his noble status would imply, is a very Coriolanus:[6] he is proud of Venice[7] as the best-governed state in Europe, as indeed it was; he is proud of his caste and of his family, and dies of grief that his good name has been besmirched with the disgrace of an elopement.[8] Lemnius mentions "chyding" as a

[1] See the present writer, "Shakespeare and the Doge of Venice," about to appear.
[2] C. Dariot, *Iudgement of the Starres*, London, 1598, sig. D 3v.
[3] J. Huarte, *Examen de Ingenios*, London, 1604, 147.
[4] J. Downame, *Spiritual Physicke*, London, 1600, leaves 25, 26, 59, 60.
[5] Huarte, *op. cit.*, 280.
[6] See the present writer, "Shakespeare's Coriolanus," *W. Va. U. Bull., Philol. Studies*, III, 22 *et seq.*
[7] *Othello*, I, i, 118.
[8] See the present writer, "Signior Brabantio, Plaintiff," *Eng. Studies*, XX, 193 *et seq.*

choleric trait;[9] and Brabantio certainly chides Roderigo for lingering about his doors, and almost boasts of his "honest plainenesse." "Courage" was perhaps the predominant trait of choler;[10] and Brabantio shows courage in both word and deed: he brusquely sets aside even the Doge himself who tries to console him for his loss; and he does not for a moment hesitate to lead the posse against Othello, or personally to arrest the General.

Just as the Tribunes play on Coriolanus' choler and Iago plays on Cassio's choleric pride and elegance and susceptibility to drink,[11] so Iago intentionally exasperates Brabantio not only by telling him of the elopement, but also by telling him in the most insulting way he can; and these two circumstances accentuate Brabantio's choler. The mere fact of the elopement overwhelms him: "It is too true an euill. Gone she is . . ." Upon this, Iago heaps the most outrageous insults, some of which would not be apparent to the modern reader: in the first place, one should not even address a nobleman, who by law was not supposed to converse with strangers.[12] In the second place, Iago and Roderigo both have the consummate assurance to address him as "*Brabantio*," without bothering even to call him Signior. In the third place, Iago twits him with appearing in public without the gown that nobles always wore abroad; and Venetian nobles took special pride in their appearance.[13] Roderigo shrinks from some of these blatant indignities; but Iago goes even further, and describes the elopement in the coarsest terms, so that the outraged father is almost at a loss for words, and cries, "What, haue you lost your wits?" Even early in the scene, Brabantio was incensed at Roderigo's intrusion and declared that his "spirits" and his power will make this "bitter" to Roderigo; but he soon has reason to be even angrier; and indeed, when choleric persons are offended, "the vehemency of the apprehension, and the braine unto the seat of perturbation, inforceth double passion. . ."[14] Then he learns that Desdemona actually has eloped, and in a surge of bitterness charges her with gross deception. He simply cannot believe it, and tries to satisfy his mind with the thought that Othello has used drugs and charms, and this he later develops into his main charge in the Trial Scene.

[9] L. Lemnius, *Touchstone of Complexions*, London, 1576, leaf 23v.

[10] Huarte, *op. cit.*, 280.

[11] See the present writer, "The Choleric Cassio," *Bull. Hist. Med.*, VII, 583 *et seq.*

[12] Lassel's travels in John Harris ed., *Navigantium atque Itinerantium Bibliotheca*, London, 1705, II, 635.

[13] *Ibid.*, II, 634-635.

[14] T. Bright, *Treatise of Melancholy*, London, 1613 (*ed. princ.*, 1586), 115.

As a matter of fact, Brabantio had three possible charges against Othello: the marriage of Desdemona without his consent, the marriage with a foreigner, for this was forbidden to Venetian nobles,[15] and the use of charms and drugs. The first two were patently true, but would involve Desdemona as an accessory; and, doubtless for this reason, the outraged but loving father, chooses the last charge, for which, of course, he has no proof at all, as the Doge points out. The progress of the trial cannot but augment Brabantio's choleric bitterness. He bursts in with his charges that his daughter was "stolne from me and corrupted By spels." The Doge offers to appoint him to act as judge in the case himself; and then, when the Council discovers that Othello is the accused, their sympathies obviously turn away from the aggrieved father. Brabantio had expected every sympathy and support from the Doge and the Senators; he had called his former guest a "foule Theefe," and insultingly addressed him as "such a thing as thou"; and now his cup must indeed run over with shock and chagrin and outrage. The wonder is that he can contain himself while Othello pleads his case. He simply cannot believe that so modest a girl could have flown so in the face of due parental authority and of Venetian law and custom; and, before the Doge, he stakes his all on the explanation that she was drugged or bewitched. Thus he agrees with Othello to let her decide the case; and this decision is his undoing. Choleric persons were hasty in speech, scornful and bitter;[16] they were "hot and fiery, bitter";[17] they were "full of grief and bitternesse."[18] Of course the climax of Brabantio's bitterness is Desdemona's public acceptance of Othello. His utterance is broken: "God be with you: I haue done." And then follows that outburst that reminds one of King Lear: "I had rather to adopt a Child, then get it." There are few more bitter speeches in all drama than his final surrender of his daughter to the Moor.

If any of the audience should doubt the intensity of Brabantio's emotion, his sardonic reaction to the comforting maxims of the Doge should provide an answer. Choleric men were supposed to be "readie to answere and quicke witted";[19] they had "Witte sharpe and quicke,"[20] and were

[15] Harris, *op. cit.*, II, 657.
[16] Lemnius, *op. cit.*, leaf 99v.
[17] W. Vaughan, *Directions for Health*, London, 1633, 18.
[18] N. Coeffeteau, *Table of Humane Passions*, London, 1621, 559.
[19] Bright, *op. cit.*, 115.
[20] T. Elyot, *Castel of Helth*, London, 1541, leaf 2v.

" prompt to wit." [21] Hill, moreover, describes them as " obstinate "; [22] and certainly Brabantio turns the tables on the Doge by applying the latter's maxims to the Turkish attack on Cyprus and thus showing their falsity, a clever bit of *reductio ad absurdum*. Brabantio was not to be comforted; and he suggests that the council return to its discussion of political affairs and leave him alone with his grief. An elopement was a family disgrace, and especially for the father of the family whose business it was to provide husbands as soon as possible for his daughters.[23] Brabantio had endured this disgrace together with the coarsest insult and then flagrant denial of justice. He could hardly hold up his head again in Venice. Misfortunes were thought to accentuate choler; [24] and one wonders how Brabantio could contain himself. This was a frustration easily equal to Hamlet's; and frustration brought on dangerous melancholy.[25] To make it worse, he loved Desdemona so deeply that her death would have made him " curse his better Angell from his side, And fall to Reprobance." Her marriage, however, was enough to cause his death:

> Thy Match was mortall to him: and pure greefe
> Shore his old thred in twaine.[26]

Shakespeare often lets a character drop out of a play without a word as to his final fate: it is so with the amiable Benvolio in *Romeo and Juliet*, and so with Robin who runs through the Falstaff plays; [27] and seemingly so even with the Fool in *Lear*. Brabantio, however, though he appears only in one act, has a sort of epitaph at the end; and this would seem to indicate that Shakespeare took special interest in the old Senator whom he had added to the Italian story. He does not, however, indicate just how Brabantio died, except that " greefe " was the cause; and this suggests that choler turned to melancholy. The text calls him " old "; and melancholy was the humor of old age.[28] Moreover, even before he knew of the elopement, he had had a bad "dreame "; and dreadful dreams espe-

[21] *Most Excellent Booke of Dr. Arcandam*, London, 1592, sig. M 2r. Cf. the present writer, *The Humors and Shakespeare's Characters*, Durham, N. C., 1945, 56.

[22] T. Hyll [Hill], *Contemplation of Mankind*, London, 1571, leaf 8v.

[23] See the present writer, " Desdemona," *Rev. Litt. Comp.*, XIII, 337 *et seq.*

[24] Coeffeteau, *op. cit.*, 580.

[25] See the present writer, *The " Hamlet " of Shakespeare's Audience*, Durham, N. C., 1938, 175-176.

[26] *Othello*, V, ii, 257-258.

[27] See the present writer, " Falstaff's Robin and other Pages," *S. P.*, XXXVI, 476 *et seq.*

[28] See the present writer, *Humors, ed. cit.*, Chap. v.

cially belonged with the cold, dry melancholic and mercurial temperaments.[29] The proper ages for choler are somewhat variously given as twenty-four to forty[30] and twenty-five to fifty;[31] and Barbantio, as a noble father who doubtless was married in his twenties, must be nearing the period when choler gave place to the melancholy of age. In short, Brabantio seems to be a preliminary psychological study for King Lear.[32] Both suffer bitter disappointment, not to say outrage, at a daughter's hands; both have reached or passed the choleric time of life appropriate to their exalted stations; but the breaking of Lear's mind and body are shown vividly before us, whereas Brabantio's we can only guess. To one, however, who knew the medical theories of the day, Brabantio's end would seem inevitable: Vaughan cites two types of choler, "open" and "hidden":[33] at first Brabantio's is of the former sort which can vent itself in speech or action; but the failure of his charge against Othello would make it "hidden" and frustrated and so turn it to melancholy. Elyot describes a choler mixed with melancholy,[34] as in Shylock;[35] and, though Shakespeare never tells us Shylock's final end, we can guess it (if we wish to spoil the comedy) from the end of Brabantio and of Lear. Coeffeteau gives three sorts of choler:[36] acute but soon over, long-continued sharp and secret, and "violent" until revenge is achieved. The end of the trial leaves Brabantio with the second type of choler—intensely bitter inner pangs without even the resolution of revenge; and *King Lear* supplies the full case-history of this potent and distressful malady, of which Desdemona's father was an earlier adumbration.

[29] *Ibid.*, 76.

[30] A. Laurentius, *Discourse of the Preservation of the Sight*, London, 1599; also ed. Larkey, Oxford, 1937, 174.

[31] Henry Cuffe, *Differences of the Ages of Mans Life*, London, 1607, 118.

[32] See the present writer, "The Old Age of King Lear," *J. E. G. P.*, XXXIX, 527 *et seq.*

[33] Vaughan, *op. cit.*, 36.

[34] Elyot, *op. cit.*, leaf 8v.

[35] See the present writer, "The Psychology of Shylock," *Bull. Hist. Med.*, VIII, 643 *et seq.*

[36] Coeffeteau, *op. cit.*, 571 *et seq.*

MEDICAL FEE BILLS FROM OHIO AND GEORGIA

HOWARD DITTRICK

An official schedule of fees is an index of both the character of medical practice of the period and the financial value of medical services to the community. Four such schedules will be described, together with references to others which have been previously published. Occasionally these printed forms reflect the activity of individual physicians in their influence upon either private practice or medical organization.

Although no attempt has been made to carry out a complete search of the literature, reference to a few reports by other authors will provide a background for this discussion. Miss M. L. Marshall [1] gives the details of several early fee bills including a New York dental fee bill of 1801. Among the items is a charge of 3 dollars each for "grafting, or setting human teeth on silver." But "even poor people may enjoy the luxury of possessing a good set of front teeth, as some are set as low as one dollar each."

Another fee bill was that of *La Société de la N'lle-Orléans* in 1824, in which was set up a "Tarif," defining clearly the scale of charges for different zones. In that city an ordinary course of treatment for syphilis cost the patient from 20 to 40 dollars, but if complicated by bubo, caries, or condylomata the charge was increased to 50-100 dollars.

A "System of Medical Etiquette, Rules and Regulations as adopted in 1839 by the Medical Association of North Eastern Kentucky," reveals the simple obstetric care given among pioneers. The fee for "a simple case of accouchment" was 10 dollars.

La Facultad de Medicos de Los Angeles, in 1850, had a high scale of fees, patients being charged 10 dollars for "una visita en la ciudad de noche." A physician writing in that year from San Francisco tells of fees paid by the forty-niners, probably the most inflationary fees in American history. For a single visit during the day or for vaccination the charge was 10 dollars, and for an operation for hemorrhoids, 300 dollars.

From these observations Miss Marshall concludes "that remuneration

[1] Marshall, M. L.: Some nineteenth century fee bills. *Bull. Institute History of Med. of Johns Hopkins Univ.* 6:62 (Jan.) 1938.

FEE BILL

ADOPTED BY THE

GEORGIA MEDICAL SOCIETY

IN 1818, AND

REVISED AND CORRECTED IN 1837.

Practice of Medicine.

For Strangers and non Residents for a Single Visit,	$3 00
Visit on Board Ship at Wharf,	2 00
" " in Stream,	5 00
Visit in Town,	1 50
Visit, by request, after dark and before 10 P. M.	4 to 5 00
Rising from bed and prescribing without visit,	2 00
Visit in the country, per mile,	1 00
Visit in the country, per mile, after dusk,	2 00
Visit by water, day or night, per mile,	2 00
Visit and Consultation	15 00
Advice, without medicine, in common cases,	1 00
" " In extraordinary cases,	5 00
Letter of Advice in common cases,	5 00
For detention by request, beyond the ordinary term, per hour,	5 00
Emetics, Cathartics, Draughts, Drops, and Pills, per dose,	50
Powders and Pills per dozen,	2 00
Mixtures, Infusions and Decoctions, viz: to avoz.	1 00
" " per lb.	2 00
Blisters and other Plasters,	50 cts. to 1 00
Tinctures and Ointments,	50 cts. to 1 00

Not more than three visits per diem to be charged, unless made by request.

Not less than five dollars to be charged for any medical services rendered a Stranger.

Written advice for the continued treatment, or the entire treatment of a case five dollars, such advice not being on the footing of a single prescription.

Practice of Midwifery.

Simple Obstetric case,	$30 00
Attendance without officiating,	15 00
Waves half these sums.	
Preternatural and complicated cases, not requiring instruments	70 00
Instrumental Labours,	70 to 100 00
Examination per Vaginam,	10 00
Restoring retroverted Uterus,	30 00
Reducing Prolapsus Uteri and retaining it by pessary,	15 00
Delivering placenta alone,	10 00

Any Medical Attendance after ten days from Delivery to be charged as usual.

Surgical Practice.

Trepanning,	50 00
Subsequent treatment according to the charges for visits and dressing—not to exceed,	120 00
Trepanning Sleeve,	25 00
Operation for Cataract and do.	50 to 100 00
" Artificial Pupil and do.	50 to 100 00
" Fistula Lachrymalis and do.	60 00
" Enterpicing Eye and do.	50 to 80 00
" Extracting Polypus and do.	15 to 60 00
" Trichiasis and do.	30 00
" Enterpicing Tonsil Gland and do.	30 00
" Brachial Aneurism and do.	80 00
" Popliteal Aneurism and do.	100 00
" Tying Subclavian Artery and do.	150 00
" Tying up Veins and do.	10 to 30 00
" Paracentesis Thoracis,	30 00
" " Abdominis,	30 00
" Tapping Hydrocele without injection,	15 to 30 00
" Radical treatment of Hydrocele,	50 to 100 00
" Hernia and subsequent treatment,	60 to 120 00
Reducing Hernia, (per taxis),	10 to 40 00
Applying a Truss,	10 00
" " " for a Slave,	5 00
Lithotomy and subsequent treatment,	150 00
Extracting Stone from the Urethra by incision or otherwise,	10 to 30 00
Operation for Phymosis,	5 to 10 00
Extirpation of the Testicle,	60 to 80 00
Puncture of the Urinary Bladder,	40 00
Introduction of Catheter, male or female,	5 to 10 00
Treatment of permanent Stricture,	30 to 100 00
Treatment of Gonorrhœa,	10 to 30 00
Treatment of Syphilis,	20 to 100 00
Extirpating Hœmorrhoids,	5 to 25 00
Division of the Frenum Linguæ,	2 to 5 00
Extirpating Cancerous Lip,	20 to 40 00
Extracting foreign bodies from Œsophagus and other passages	5 to 20 00
Operation for Ranula,	10 to 20 00
Tracheotomy and Laryngotomy,	20 to 50 00
Operation for Fistula in Ano,	50 to 100 00
Operation for Fistula in Perinæo,	50 to 100 00
Operation for Hare Lip,	20 to 40 00
Perforation of the Antrum Maxillare,	30 to 50 00
Excision of Maxilla,	50 to 60 00
Amputation at the shoulder joint,	100 00
" Arm or fore-arm,	60 00
" Thigh or Leg,	100 00
" Finger or Toe,	20 00
" Metatarsal or Metacarpal bone,	20 to 50 00
" Penis,	40 to 60 00
Treatment of simple Fracture of lower jaw,	20 to 50 00
" Clavicle,	30 to 40 00
" Arm or Fore-Arm,	20 to 30 00
" Thigh	60 to 100 00
" Leg,	40 to 60 00
" Olecranon	30 to 50 00
" Patella,	40 to 60 00
" Finger or Toe,	10 to 20 00
" Rib,	20 to 40 00

Compound Fractures to be charged the double of simple cases.

Reducing luxation of the jaw,	10 to 20 00
" Shoulder, Arm, or wrist,	20 to 60 00
" Hip,	30 to 100 00
" Knee or Ankle,	25 to 50 00
" Finger or Toe,	5 to 10 00
" Patella,	10 00
Dressing Common Ulcers,	1 to 2 00
Extirpating Tumours,	10 to 60 00
Opening Common Abscess,	1 to 3 00
Venesection or extracting Teeth,	1 00
Insertion of Setons, or Issues,	2 to 5 00
Scarification and Cupping,	2 to 5 00
Application of Leeches,	1 to 5 00
Arteriotomy,	2 to 5 00
Vaccination, Whites,	5 00
" Slaves,	2 00
" " per dozen,	24 00
Medical Certificates,	5 00
Electricity,	1 00
Attendance at Court involving a Medical opinion,	15 00
Making a Post Mortem Examination by request,	15 00

WM. R. WARING, M. D. *President.*

P. M. KOLLOCK, M. D. *Secretary.*

Fig. 1.

Fee Bill of the Georgia Medical Society, 1837.

was surprisingly high in consideration that service was without antisepsis, without roentgenology and all other valuable aids to medical practice today." She further suggests, "Perhaps these early fee bills should be publicized among disgruntled patients."

Dr. H. E. Sigerist[2] reprinted a "Fee Bill of the Georgia Medical Society, Revised in 1863," which is similar to one in the Museum of the Cleveland Medical Library. The latter (Fig. 1) is entitled, "Fee Bill of the Georgia Medical Society in 1818 and revised and corrected in 1837." From these two bills it would seem that Georgia was a favorite spot for travelers, for a special tariff somewhat higher than for the townspeople was provided for the strangers' medical care. Was the evident discrimination founded on unreliable character of travelers or suspicion of strangers? One of the provisions reads, "not less than five dollars to be charged for any services rendered a Stranger."

When we consider the amount of service required and the purchasing power of the dollar, the charges in the revised bill of 1837 were reasonable for "extirpating the Tonsil gland" (30 dollars), and for the treatment of venereal disease. The charge for a "Simple Obstetric Case" remained a fairly standard fee in small towns for about seventy-five years. A wise provision was the setting of a fair fee for filling out a medical certificate. In many communities today there should be a clearer understanding over provisions of this nature. For venesection the patient paid one dollar, the same amount as for extraction of a tooth. For cupping and arteriotomy the charge was more, 2-5 dollars. These last few items are indicative of the frequency of cupping and bleeding in the treatment of disease, as well as the necessity for some knowledge of dentistry.

The institution of slavery was recognized. Both humanity and economics dictated medical care of slaves. The fee for care of the slave was half of that for the master. Sometimes it was carried out *en masse*, as in the vaccinations at 24 dollars a dozen.

Except in a few instances the 1837 schedule shows a lower series of charges than is found in the schedule of 1863. It is inferred that one of the signers, P. M. Pollock, must have been interested in medical organization. He signed the earlier bill as secretary and the later one as vice-president of the Georgia Medical Society.

[2] Sigerist, H. E.: Fee bill of the Georgia Medical Society, revised in 1863. *Bull. Institute of Hist. of Med. of Johns Hopkins Univ.* 4: 333 (April) 1936.

FEE BILL,

OF THE

Union Medical Association of northern Ohio,

And adopted June 1855, by

THE PHYSICIANS OF MEDINA COUNTY.

For Office prescription,	25c to $1
" Each visit in town,	50cts
" " subsequent mile,	25 to 50c
" Night visits an addition of fifty to one hundred per cent.	
" Way call,	50cts
" Extraordinary detention with a patient twenty-five to fifty cts. per hour.	
" An opinion in writing or special advice, from	$1 to 5
" Consultation visit, from	1 to 3
Mileage to be added.	
" Prescription for Gonorrhœ fee in advance, from	5 to 20
" Prescription for Syphilis fee in advance,	10 to 50

Obstetrics.

For Natural case of delivery	$4 to 5
" Instrumental case "	8 to 15
" Extracting placenta	2 to 5

Surgical Operations.

For all capital operations, amputations, lithotomy, hernia, trephining, &c..	$30 to 100
For adjusting fractured femur.	10 to 25
" " " tibia & fibula	10 to 15
" " " humerus	5 to 10
" " " radius & ulna	" to 10
" " either	5
Reducing dislocated shoulder	3 to 5
Reducing dislocated elbow	5 to 15
" " wrist	5
" " hip joint	15 to 20
" " ankle	10 to 20
Amputation through tarsal or metatarsal bones	10 to 25
Extracting teeth each	25cts
Venesection & Vaccination	50 to $1
Cupping	" "
Excising large tumors	$10 to 50
do small ones	1 to 10
do Glandular tumors	5 to 25
do Enlarged Tonsils	do 10
Operation for necrosis and exostosis	15 to 30
Important operation on eye	25 to 50
Minor "	" 5 to 20
Reducing hernia and applying truss	1 to 5
Dressing recent wounds, opening abscesses, introducing seatons or issues	50 to 75
Extirpa'g polypus from nose	$3 to 10
do do uterus	15 to 30
Operation for fistula in ano or perinco	5 to 25
Passing catheter or bougie	1 to 5
Paracentesis, thoracis, abdominis or vesicus	2 to 30
Operation for hydrocele,	5 to 50
Tying large arteries in recent wounds	5 to 30
Operation on hare lip	10 to 20

In all surgical cases, midwife, subsequent attendance, dressing and medicine, to be charged at the usual rates, as in other cases. Night visits in the country are considered as beginning at dark, and as ten o'clock, and ending at daybreak.

By the foregoing Bill, the Practitioner, aided by his own judgment, can regulate his fees in cases of extraordinary detention or attendance, which in the very nature of things, occur.

When it becomes necessary to call a second Physician in a case of midwifery, both shall charge the usual fee for accouchement except the consulting Physician pays only a consulting visit, and is not detained, in which case he shall charge the usual consulting fee.

When convenient, the Physician should present his account for settlement within three months from time of attendance, and in every instance should settle his claims by each or note once a year.

Dr. H. Alden,	Dr. C. N. Lyman,	Dr. E. H. Sibley,
" L. D. Tolman,	" H. Spillman,	" J. Howard,
" N. Eastman,	" A. C. Smith,	" H. J. Grismer,
" H. Tiffany,	" P. E. Munger.	" W. H Painter,
" S. Hills,	" H. Warner,	" Wm. P. England,
" M. Houg,	" J. C. Bradford,	" J. H. Carpenter,
" J. C. Preston,	" A. G Willey,	" T. Hunter.
" S. Hudson,	" E. G. Hard,	" D. Palmer.
" E. B. McKenzie.		

Fig. 2.

Fee Bill of the Union Medical Association of Northern Ohio, 1855.

In 1821, the Cincinnati Medical Association set up a fee schedule[3] signed by 18 physicians. A charge of 2 dollars was made for a visit to Newport or Covington, Kentucky. The charge of 15 dollars for an operation for harelip would seem to be an undercharge, while 10 dollars for tapping for dropsy might be considered a liberal fee. Evidently surgery did not then enjoy the esteem that it acquired later, at least that might be deduced from the remuneration asked for "amputation of large limbs, trepanning, extirpation of large tumours, and other surgical operations of equal difficulty and importance, 30 dollars."

A "Fee Bill of the Union Medical Society of Northern Ohio and adopted July 1855 by the Physicians of Medina County" (Fig. 2) was presented to the Museum by Dr. Harry Street of Litchfield, O. This schedule, signed by twenty-five physicians, contains many examples of low fees. An office prescription cost 25 cents to one dollar, a visit in town 50 cents, and extraction of teeth 25 cents each. "Venesection and vaccination" for 50 cents to 5 dollars are other charges reflecting practice of the period. An item characteristic of the doctor on horseback is the charge of 50 cents for a "way call." This type of visit was often arranged while the doctor was absent several days on his rounds through the country. The message to make a "way call" was relayed by a neighborhood patient whom the doctor was expected to visit.

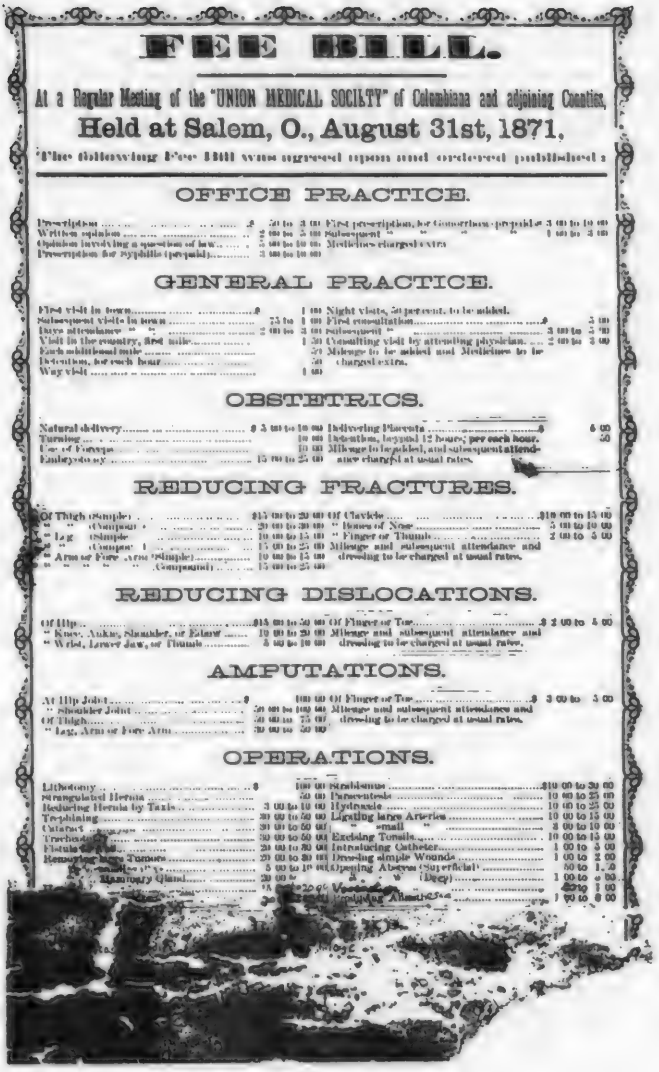
In the fine print we read, "night visits in the country are considered as beginning at dark, and in town at 10 o'clock, and ending at daylight." The visits in the country which were made at a basic fee of 50 cents, plus 25 to 50 cents for each mile outside town and an increase of 50 to 100 per cent when made at night, must have been a hardship in that winter of 1855 during which there were 100 days of continuous sleighing.[4]

The Medina County fee bill is an attractive example of printing. The bold face type adds both to the legibility and artistic appearance of this framed bit of office furnishing.

Another fee bill, once the property of Dr. W. P. Arner of Warren, O., was "agreed upon and ordered published" at Salem, O., on August 31, 1871, by the Union Medical Society of Columbiana and surrounding counties (Fig. 3). A new charge appears in this bill—"Producing Anaesthesia, 1-3 dollars." The charge for removing tonsils was less than

[3] Juettner, Otto: *Daniel Drake and his Followers* (Cincinnati: Harvey Publishing Co., 1909) p. 96.

[4] Howe, Henry: *Historical Collections of Ohio* (Cincinnati: C. J. Krehbiel, 1904) Vol. II, pp. 209.



FEE BILL.

At a Regular Meeting of the "UNION MEDICAL SOCIETY" of Columbiana and adjoining Counties,

Held at Salem, O., August 31st, 1871,

The following Fee Bill was agreed upon and ordered published:

OFFICE PRACTICE.

Prescription	$ 50 to 3 00	First prescription, for Gonorrhœa, payable	3 00 to 10 00
Written opinion	2 00 to 5 00	Subsequent " " "	1 00 to 3 00
Opinion involving a question of law	5 00 to 10 00	Medicines charged extra	
Prescription for syphilis (payable)	3 00 to 10 00		

GENERAL PRACTICE.

First visit in town	$ 1 00	Night visits, 50 per cent. to be added.	
Subsequent visits in town	75 to 1 00	First consultation	$ 3 00
Days attendance " "	2 00 to 3 00	Subsequent "	2 00 to 3 00
Visit in the country, first mile	1 50	Consulting visit by attending physician	2 00 to 3 00
Each additional mile	50	Mileage to be added and Medicines to be charged extra.	
Detention, for each hour	50		
Way visit	1 00		

OBSTETRICS.

Natural delivery	$ 5 00 to 10 00	Delivering Placenta	$ 4 00
Turning	10 00	Detention, beyond 12 hours, per each hour.	50
Use of Forceps	10 00	Mileage to be added, and subsequent attendance charged at usual rates.	
Embryotomy	15 00 to 25 00		

REDUCING FRACTURES.

Of Thigh (Simple)	$15 00 to 20 00	Of Clavicle	$10 00 to 15 00
" " (Compound)	20 00 to 30 00	" Bones of Nose	5 00 to 10 00
" Leg (Simple	10 00 to 15 00	" Finger or Thumb	2 00 to 5 00
" " (Compound	15 00 to 25 00	Mileage and subsequent attendance and dressing to be charged at usual rates.	
" Arm or Fore Arm (Simple)	10 00 to 15 00		
" " " " (Compound)	15 00 to 25 00		

REDUCING DISLOCATIONS.

Of Hip	$15 00 to 20 00	Of Finger or Toe	$ 2 00 to 5 00
" Knee, Ankle, Shoulder, or Elbow	10 00 to 20 00	Mileage and subsequent attendance and dressing to be charged at usual rates.	
" Wrist, Lower Jaw, or Thumb	5 00 to 10 00		

AMPUTATIONS.

At Hip Joint	$ 100 00	Of Finger or Toe	$ 3 00 to 5 00
" Shoulder Joint	50 00 to 100 00	Mileage and subsequent attendance and dressing to be charged at usual rates.	
Of Thigh	60 00 to 75 00		
" Leg, Arm or Fore Arm	30 00 to 50 00		

OPERATIONS.

Lithotomy	$ 100 00	Strabismus	$10 00 to 30 00
Strangulated Hernia	50 00	Paracentesis	10 00 to 25 00
Reducing Hernia by Taxis	3 00 to 10 00	Hypnasie	10 00 to 25 00
Trephining	30 00 to 50 00	Ligating large Arteries	10 00 to 15 00
Cataract	30 00 to 50 00	" small "	3 00 to 10 00
Trachea	30 00 to 50 00	Excising Tonsils	10 00 to 15 00
Fistula in Ano	20 00 to 30 00	Introducing Catheter	1 00 to 5 00
Removing large Tumors	20 00 to 30 00	Dressing simple Wounds	1 00 to 2 00
" small "	5 00 to 10 00	Opening Abscess (Superficial)	50 to 1 00
" Mammary Gland	20 00 to	" " (Deep)	1 00 to 2 00
			50 to 1 00
			1 00 to 3 00

Fig. 3.

Fee Bill of the Union Medical Society of Columbiana, 1871.

half of that in Georgia 34 years earlier. Fees for venereal disease were paid in advance, a custom which experience has justified. The first consultation for 5 dollars, with subsequent consultations at 3 to 5 dollars, would seem to be rather high when we consider the time and service.

The cost of having babies in Columbiana County in 1871 was almost twice as much as in Medina County in 1855. There was in fact considerable advance in the cost of all medical care in these two Ohio counties between the two dates.

The following data at the bottom of the Fee Bill for Columbiana County is becoming difficult to decipher. It has been reproduced as fully as possible to preserve the record.

Harelip	15.00 to 20.00	Vaccination	.50 to 1.00
Club-foot	30.00 to 50.00	Producing Anesthesia	1.00 to 3.00

REMARKS

In all cases, Medical, Obstetrical or Surgical, mileage, subsequent attendance, dressings and medicine to be charged at usual rates.

In cases involving great responsibility ..... &c, &c, ... when a minute examination is required .... ion extra.

The Physician should present his account within three months after the time (*of attendance. The patient in every*) instance should settle, by cash or note, within six months.

Republican ..... Job Print, Salem, O.

Why do we find so many Ohio medical societies setting up fee schedules in the mid-nineteenth century? During the thirties and forties an urge to organize was apparent in medical circles of Ohio. In 1835 the first Ohio Medical Convention was held in Columbus; the second in 1838, also in Columbus; and the third in 1839, held in Cleveland. This stimulus for organization was probably general for in 1846 the American Medical Association was founded. Conspicuous in Ohio medical organizations was Dr. Daniel Drake of Cincinnati, who was either directing or criticizing all of them. Dr. J. Potter Kirtland, although living in Cleveland, was associated for four months of the year with Drake on the faculty of the Medical College of Ohio. Dr. Kirtland also was an active participant in the Ohio Medical Conventions, and was elected President of one held in 1839.

In January 1838 Drake, editor of the *Western Medical Journal of Medical and Physical Sciences*[5] appealed to physicians to send to that

[5] Editorial, "D": *West. Med. J. of Med. and Phys. Sciences*, 11:501 (Jan.) 1838.

Journal full information of customary charges for medical services. There was some response by April [6] of that year, but not sufficient to make any conclusive report. The suggestion must have been simmering in the minds of the group in Green County [7] for that medical society in 1840 "adopted a system of rules and regulations for the government of its members in their professional intercourse with one another, and also a fee bill, designed to produce uniformity of deportment and charging."

The second meeting of the Ohio Medical Convention in 1838 was probably responsible for this action in Green County. Results came more quickly in Cleveland, doubtless directly due to the close association between Drake and Kirtland, both at the 1838 Convention and later that year at the Medical College of Ohio.

A Fee Table for the City of Cleveland (Figs. 4, 5, 6, 7 and 8) was recently presented to the Museum of the Cleveland Medical Library by Henry Schuman of New York. It is not dated. It was signed by fourteen physicians: Jared P. Kirtland (heading the list), Erastus Cushing, Charles A. Terry, George Mendenhall, H. Mellen Congar, J. B. Hutchinson, Mills & Inglehart, Charles D. Brayton, H. A. Ackley, M. L. Hewitt, Edwin W. Cowles, Robert Johnstone and P. Mathivet.

The date of this Fee Table was ascertained by means of determination of concurrent dates in the practice of these individual physicians. The arrangement of partnerships, which was both frequent and fleeting in this era, also afforded pertinent data. Some of the clues which have been used to fix the date are as follows: Erastus Cushing came to Cleveland in 1835.[8] Cowles was practising in Cleveland in 1832, in Detroit in 1834, and returned to Cleveland in 1838.[9] Kirtland moved to Cleveland in 1837.[10] Mills and Ackley advertised a newly-formed partnership in March 1837.[11] Ackley was evidently carrying on some practice in Cleveland while he was teaching anatomy in the medical school at Willoughby. He did not settle permanently in Cleveland until May 25, 1839.[12] The Mills-Ackley partnership did not last long, for on September 30, 1837

[6] Editorial, "D": *West. Med. J. of Med. and Phys. Sciences*, 11:651 (Jan.) 1838.

[7] Green County Med. Soc.: *West. Med. J. of Med. and Surg.* 2:402 (Nov.) 1840.

[8] Dittrick, Howard: *Pioneer Medicine in the Western Reserve* (Cleveland: Acad. of Medicine, 1932) p. 67.

[9] *Ibid.*, p. 73.

[10] Orth, S. P.: *History of Cleveland* (Chicago-Cleveland: S. J. Clarke Publishing Co., 1910) p. 186.

[11] *Ibid.*, p. 48.

[12] *Annals of Cleveland*, Cleveland Newspaper Digest. WPA Project. 20:180, 1837.

THE TABLE.

For the first visit,	$1 00	to	2
Every subsequent visit after first, (same day)	1 "		
First consultation visit,	5 00		
Each do. do. after first,	2 50		
Opinion in writing,	5 00		10
Visiting at night, after 10 o'clock, P. M., and before sunrise,	2 00		3
Detention in case at patient's house during the night,	5 00		10 00
Advice and Prescription at Office,	50		1 00
Visiting out of town, for every mile from the line of the city, (night, double)	50		
Case of Midwifery, (natural)	10 00		
do. do. (preternatural)	15 00		50 00
Extracting Placenta,	10 00		
Each necessary subsequent visit after fourth day,	1 00		
Venesection or extraction of Tooth,	50		1 00
Vaccination,	2 00		5 00
Cure of Gonorrhœa or Syphilis,	10 00		100 00
Amputation of Leg,	50 00		
do. of Arm,	30 00		

Fig. 5.

MEDICAL.

FEE TABLE,

FOR THE

City of Cleveland, Ohio.

Daniels' Job Printing Establishment, No. 1, Superior-Block.

Fig. 4.

Amputation of Toes and Fingers,	5 00	to	10 00
Excision of diseased Joints,	100 00		
Operation of Trepaning,	30 00		50 00
Reduction of Dislocation,	10 00		50 00
Adjustment of Fractures,	10 00		30 00
Operation of Lithotomy,	50 00		200 "
Reduction of Hernia,	5 00		15 "
Operation for Strangulated Hernia,	50 00		
Important operation on the Eye,	50 00		
Minor operation on the Eye,	5 00		20 "
Dressing recent Wounds, opening Abscess, and introducing Seaton or Issue,	1 00		10 00
Each subsequent dressing in addition to visit, (according to discretion of Physician)	1 00		5 00
Extirpation of Polypus,	10 00		50 00
do. of Tumors,	10 00		100 00
Operation for Fistula in Ano or Perinæo.	10 00		50 "
Passing Catheter or Bougie,	1 "		5 "
Paracentesis Abdominis or Thoracis or Vesicæ,	10 00		30 00
Operation for Hydrocele.	10 00		30 00
do. Aneurism.	25 00		100 00
do. Hare-Lip.	10 00		30 00
do. Club-Feet & attendance. (single)	30 00		50 00
do. do. do. (double)	50 00		100 00

Medicine included, except the more common articles that are usually kept in the family.

In Surgical Operations, attendance, at the ordinary rate, is to be charged in addition to the operation.

Fig. 6.

Medical Fee Table, City of Cleveland, 1839-1840.

Fee Table.

For the City of Cleveland, in Cases where the Physician furnishes no Medicine.

For the first visit,	1 00	
For the second visit, (same day)	75	
Subsequent ones, do.	50	
Visit at night after 10 P. M., (before sunrise)	1 50	2 00
Detention at night,	3 00	10 "
Case of Gonorrhœa or Syphilis,	5 00	100 "

In all other cases, to conform to the prices established by the other Table.

Whereas, the foregoing "Table of Fees" has been, in fact, practically in use for a few years, by the Faculty of Cleveland,

Resolved, That it be adopted by the members of the Medical Profession, residing in the City of Cleveland, whose names are hereunto affixed. The Fees shall be increased according to the responsibility or importance of the case, and services rendered, when extraordinary. They may be diminished at the discretion of the Physician, when he is well convinced of the inability of the individual to pay the full charge; but in no instance, shall a deduction be made, for the purpose of mercenary competition.

2nd. It is recommended to present accounts for settlement, quarterly, and in no instance shall the account remain

Fig. 7.

without adjustment, longer than one year; believing that we are under no obligation to give a longer credit than does the merchant, the mechanic, or members of other respectable professions.

3d. In the above regulations, it is not intended to prevent gratuitous services to the poor; still, we do not believe it the duty of the Physician (in a country where ample provision is made by law, for the poor) to indiscriminately, give his services and medicines; with equal propriety, might the merchant be requested to clothe, and the provision dealer to feed the poor, in every instance, gratuitously.

Jared P. Kirtland,
Erastus Cushing,
Charles A. Terry,
Geo. Mendenhall,
H. Mellen Congar,
J. B. Hutchinson,
Mills & Inglehart,
Charles D. Brayton,
H. A. Ackley,
M. L. Hewitt,
Edwin W. Cowles,
Robt. Johnstone,
P. Mathivet.

Fig. 8.

Medical Fee Table, City of Cleveland, 1839-1840.

the Mills-Inglehart partnership was announced.[13] Brayton and Terry dissolved an existing partnership on April 5, 1839,[14] and an Ackley-Hewitt partnership was formed on May 6, 1840.[15] Although the formation of partnerships appeared regularly as advertisements in the newspapers, there is no recognition in the Fee Table of the existence of the last two combinations. This fact alone tends to fix the date between April 5, 1839 and May 6, 1840. The first date would be compatible with that of the return of Cowles to Cleveland in 1838, but would have to be modified slightly because Ackley did not establish himself permanently in Cleveland until May 25, 1839. The latest date is consistent with the existence of the Mills-Inglehart partnership from 1837 until July 1, 1841,[16] the death of Joshua Mills on April 29, 1843,[17] and the departure of Mendenhall to Cincinnati in 1843. It is concluded, therefore, that the Fee Table was published after Ackley's location in Cleveland on May 25, 1839 and previous to the formation of the Ackley-Hewitt partnership on May 6, 1840. All who signed the document were living and were practising in Cleveland between those dates.

Furthermore, from the appearance of Kirtland's name at the head of the list of the signers and his connection with Drake, and because of the agitation for such fee schedules through Drake's publication, it is inferred that in all likelihood this document represents the activity of Kirtland which had been influenced by Drake.

Through this little brochure the fees of the period are found to be much higher than they were 16 years later in neighboring Medina County. The fee for vaccination, for example, was 2 to 5 dollars in Cleveland. Perhaps it is the influence of Ackley that is seen in the setting of surgical fees. Ackley, as will be remembered, was Cleveland's first specialist in surgery. In this schedule we note the early mention in Ohio practice of a fee of 200 dollars. The operation for lithotomy is quoted as 50 to 200 dollars. Likewise Mendenhall,[18] after returning on June 14, 1838, from postgraduate study in Philadelphia, became active in orthopedics. He and Congar advertised on August 19, 1840, that they would accept patients with clubfoot for surgical treatment. Hence the item in the Fee Table lists the charge for correction of double clubfoot as high as 100 dollars. In all these operations it is further noted that the patient paid an additional amount for postoperative care.

[13] *Ibid.*, 22 : 117, 1839.
[14] *Ibid.*, 20 : 181, 1837.
[15] *Ibid.*, 22 : 117, 1839.
[16] *Ibid.*, 23 : 143, 1840.
[17] *Ibid.*, 24 : 126, 1841.
[18] *Ibid.*, 21 : 171, 1838.

Of course these fees were adjusted at the discretion of the physician, but "in no instance, shall a deduction be made, for the purposes of mercenary competition." I suspect it was the aristocratic and well read Erastus Cushing, grandfather of Harvey Cushing, who wrote the following remarks so pointedly reminiscent of the philosophy of Peter Chamberlen:[19] "We are under no obligation to give a longer credit than does the merchant, the mechanic, or members of other respectable professions. . . . It is not intended to prevent gratuitous service to the poor; still, we do not believe it the duty of the Physician (in a country where ample provision is made by law for the poor) to indiscriminately, give his services and medicines; with equal propriety, might the merchant be requested to clothe, and the provision dealer to feed the poor, in every instance, gratuitously."

This record of detailed charges for medical services throws many sidelights on practice of the period. It might be interesting to conjecture what would have happened to these *Union* Medical Societies, if present-day law enforcement bodies had been in control at that time. The preparation and adoption of a fee schedule might have been considered contrary to public welfare and subject to prosecution under an anti-trust act. Nevertheless, it is clear that such regulations must have been carried out with proper discretion for never at any time was the family doctor held in higher esteem, even affection, than during the nineteenth century.

[19] Aveling, J. H.: The Chamberlens (London: Churchill, 1882) p. 56.

MALARIA AS A MILITARY WEAPON: A CAPTURED GERMAN BROADSIDE

SAUL JARCHO

The terminal phases of the war in Europe were accompanied by large captures of men, weapons, and records. The records included not only published materials but many notes and scraps of uncertain authorship and provenance. These anonymous scraps frequently represent uncompleted projects and hence offer insight into the plans or methods of the enemy.

A miscellaneous collection recently received in Washington through the Office of Strategic Services had been captured from a German laboratory train. The hoard consisted chiefly of textbooks, reprints, and miscellaneous field notes, chiefly meteorological. Included therewith was a detached page of special interest to historians of medicine.

This document is a single sheet of coarse paper measuring 21 by 29.5 cm. The obverse bears a short typewritten essay entitled ITALY'S MALARIA BELT. At the upper left-hand corner is a pencilled sketch showing the malarious areas of Italy and Sicily. In several places the typewritten text bears pencilled corrections written in a German handwriting.

The little essay states that malaria is a harmless disease which procures for the soldiers the advantages of a sojourn in the hospital and a period of convalescent leave. If antimalarial drugs are avoided, relapses will occur and these will again admit the soldier to the sheltered security of the hospital. Thus malaria in time of war is equivalent to life insurance.

Mosquito nets are uncomfortable and they keep out the fresh air. A real he-man (*emended to*: a regular guy) is not afraid of a few mosquitoes. The antimalarial drugs—in this case probably atabrine rather than quinine—really protect against malaria, but they upset the stomach and they cause impotence.

The text ends with a convivial appeal: "Well, you son-of-a-gun, what about a good malaria, so you won't count to the deads of the last attack before war's end?"

The broadside is an effort to convince the American soldier of the desirability of acquiring malaria. This implies that the enemy fully recognizes the destructive effect of malaria on armies. Accordingly the document is an attempt to use disease as a military weapon. Therein lies its historical significance.

The text is an ingenious combination of truth and falsehood—*tam ficti pravique tenax quam nuntius veri*. Although malaria is by no means a harmless disease, the fatality rate in Italy is low and a soldier would be safer in a protected hospital than in the front lines. While it is true that atabrine, especially if taken on an empty stomach, is capable of producing digestive disturbances, there is no evidence that the drug produces either infertility or impotence. Yet soldiers, like other men in groups, are highly susceptible to suggestions regarding impaired sexual ability. Thus it is well known that troops in Pacific areas greatly dreaded filariasis, in the belief that this disease causes infertility. The late Maj. Rainier stated that soldiers in North Africa feared to drink the local waters for the same reason.

The wording of the broadside is familiar, friendly, and colloquial. There are several errors which betray the German origin, e. g. *mosquito-stitches* for mosquito bites and *richt* for right. Both the text and the emendations display familiarity with American slang.

It is abundantly evident that the methods of contemporary American advertising have influenced the manner of presentation.

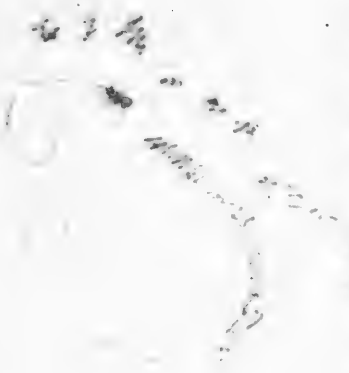
Italy's Malaria Belt

Malaria is at home nearly everywhere in the downlands of Italy. You get it through the bit of mosquitoes that sting after sunset. Malaria is a fever which shakes you for one day only and comes back a lot of times with one day free between the fits. Then the whole set may reappear weeks and months after treatment. There is no danger in it and yet hospital sojorn is needed and often followed by convalescent leave.

Why, if you're afraid of malaria, don't go where you can get it. Houses in the downs, poor houses with plenty of children are malaria dens. So many a boy had to lie down for weeks a fortnight after visiting such a place because a nice girl there wished him well. There was just also a malaria mosquito which had stung him there?

The doc will stop your fever after two or three fits—naturally only if his stuff is swallowed as prescribed. *But malaria comes again if the pills to give it the knockout after the fits are not taken.* You may reckon with a relapse and a new hospital treat after 4 or 6 weeks. Oh yes, a malaria is a first-rate life-insurance. You write off that time from the war and its ~~soup~~ mess. And think that a few, harmless, soon forgotten mosquito-stitches may do it!

ITALY'S MALARIA BELT



Malaria is at home nearly everywhere in the downlands of Italy. You get it through the bit of mosquitoes that sting after sunset. Malaria is a fever which shakes you for one day only and comes back a lot of times with one day free between the fits. Then the whole set may reappear weeks and months after treatment. There is no danger in it and yet hospital sojourn is needed and often followed by convalescent leave.

Why, if you're afraid of malaria, don't go where you can get it. Houses in the downs, poor houses with plenty of of children are malaria dens. So many a boy had to lie down for weeks a fortnight after visiting such a place because a nice girl there wished him well. There was just also a malaria mosquito which had stung him there.

The doc will stop your fever after two or three fits – naturally only if his stuff is swallowed as prescribed. But malaria comes again if the pills do not give it the knockout after the fits are not taken. You may reckon with a relapse and a new hospital treat after 4 or 6 weeks. Oh yes, a malaria is a first-rate life-insurance. You write off that time from the war and its mess. And think that a few, harmless, soon forgotten mosquito-stitches may do it!

By the way, why sleep under that sticky, narrow mosquito-net? Fresh air and no head-ache is the richt stuff for summer; you're tired enough to sleep even with those few mosquitoes – a real he-man won't fuss much about them anyway. And then, why do they request you to swallow those dam pills everyday? They are supposed to protect you against malaria – they really do. But that's not all, buddy. They taste awfully and they do upset your stomach. However, that is not the worst of it. Man's best strength is weakened by them – so, let you and your a nice girl come the way and the only pleasure war sometimes offers is gone and she laughs at you. That daily gulping of those tablets makes the strongest man impotent – which may please suckers and sissy's(so long they are nocht hit themselves. But you? Well, you son-of-a-gun, what about a good malaria, so you won't count to the fells of the last breath before war's end?

A Broadside Captured from a German Laboratory Train.

By the way, why sleep under that sticky, narrow mosquito-net? Fresh air and no head-ache is the richt stuff for summer; you're tired enough to sleep even with those few mosquitoes—a real he-man [regular guy] won't fuss much about them anyway. And then, why do they request you to swallow those dam pills everyday? They are supposed to protect you against malaria—they really do. But that's not all, buddy! They taste awfully and they do upset your stomach. However, that is not the worst of it. Man's best strength is weakened by them ~~and~~. So, let ~~now and then~~ a nice girl ~~come the~~ cross your way and the only pleasure war sometimes offers is gone and she laughs at you. That daily gulping of those tablets makes the strongest man impotent—which may please suckers and sissy's ~~so long they are nocht hit themselves. But you?~~ But why should it hit you? a real he-man.

Well, you son-of-a-gun, what about a good malaria, so you won't count to the deads of the last attack before war's end?

MEDICO-HISTORICAL NEWS AND ACTIVITIES

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

CONSTITUENT SOCIETIES

The Johns Hopkins Medical History Club, Baltimore, Md.

The Johns Hopkins Medical History Club commemorated the two-hundredth anniversary of the birth of Dr. Benjamin Rush (January 4, 1746—April 19, 1813) at a meeting in the Lecture Hall of the Institute of the History of Medicine on December 17, 1945. The program was as follows:

Benjamin Rush as a Psychiatrist.	Dr. Clifford B. Farr
Benjamin Rush as Seen in His Autobiography and Commonplace Book.	Dr. George W. Corner
Benjamin Rush and the Brunonian System.	Dr. Owsei Temkin

An exhibit illustrating the life and work of Rush was displayed in the Exhibition Hall of the Institute.

The Medical History Club of Charleston, S. C.

This year marks the twentieth anniversary of the Medical History Club of Charleston which was organized on November 5, 1925 through the efforts of Dr. Robert Wilson. To commemorate the event the Club has prepared a very interesting mimeographed booklet giving the history of the Club up to the present time. It includes a photograph of Dr. Wilson, all of the minutes of the Club which have been preserved, and a complete list of all the papers which were read at the monthly meetings. This Medical History Club, which has been a Constituent Society of the Association since 1939, has been very active in promoting interest in medical history in South Carolina. It introduced a motion in the Medical Society of South Carolina which resulted in the creation of the Committee on Historical Medicine of the South Carolina Medical Association in 1937. In 1929 the Club erected a tablet to Dr. Eugene L. Jagar in the Roper Hospital Clinic, and in 1936 it sponsored a museum of roentgenology at the Medical College.

The anniversary was celebrated in November with a small dinner given in honor of Dr. Robert Wilson, its founder.

The New York Society for Medical History

The December meeting of the Society was held at Squibb Hall on December 6, 1945. Drs. George Rosen and Beate Caspari-Rosen spoke on "Autobiography in Medicine: The Doctor in Search of Himself."

NATIONAL AND CANADIAN NEWS

Calgary Associate Clinic Historical Bulletin.

In May, 1945 the *Historical Bulletin* commemorated its tenth anniversary. For a number of years the members of the Calgary Associate Clinic in Calgary,

Alberta have held monthly "Historical Nights" at which they have approached medicine from the broadest possible angle, not just as a science, but as an aspect of human culture. Ten years ago, under the leadership of Dr. E. P. Scarlett, they began publishing the papers read at these meetings in a *Bulletin* which was published quarterly. The May, 1945 issue of the *Historical Bulletin* is a special anniversary number containing 16 papers contributed by physicians in Canada, the United States and Great Britain.

Illinois

The third annual D. J. Davis Lecture on Medical History was delivered by Dr. Carl E. Black on November 21, 1945 at the University of Illinois College of Medicine. Dr. Black discussed "Medical Practice before the Hard Roads."

Pennsylvania

The Edgar Fahs Smith Library of the University of Pennsylvania was recently presented with an extensive collection on the history of chemistry through the generosity of Dr. Charles A. Browne, of the U. S. Department of Agriculture, Washington, D. C. Dr. Browne donated the collection in memory of his parents, Charles Albert Browne, Sr., and Susan McCallum Browne. Rare books, manuscripts, and portraits comprise the collection which includes rare Paracelsus and Robert Boyle items.

NEWS FROM ABROAD

Argentina

A new medico-historical journal has recently been issued in Argentina: *Archivos Argentinos de Historia de la Medicina.* It is the official publication of the Sociedad de Historia de la Medicina de La Plata, issued under the directorship of Dr. Enrique Luis Carri. The Society was founded on October 29, 1940 by a number of members of the Sociedad Médica de La Plata who were interested in medical history. Dr. Aníbal Ruiz Moreno has been President ever since its inception. Two volumes of *Archivos* have been issued, Tomo I, 1944, and Tomo II, 1945.

Guatemala

We have just received word that Dr. Carlos Martínez Durán, Professor of Histology at the Universidad de San Carlos who has written extensively on the medical history of his country, has been made Rector of the Universidad de San Carlos.

Peru

A detailed account of the activities of the Sociedad Peruana de Historia de la Medicina during the year 1944-1945 was published in *La Reforma Médica*, 1945, Año XXXI, pp. 273-281. The report was prepared by Dr. Carlos Enrique Paz Soldán, the President of the Society. The Society recently issued a very interesting monograph *Vida y Obras de José Mariano Macedo (1823-1894)*, Lima, 1945.

Egypt

The personal library of the late Dr. Max Meyerhof of Cairo, which included around 10,000 volumes on ophthalmology, ancient Egyptian, and Arabic medicine, has been given to the libraries of Fouad I University, Cairo, and Farouk I University, Alexandria. The Army Medical Library in Washington has acquired an almost complete collection of Dr. Meyerhof's works, which includes some unpublished manuscript materials by Dr. Meyerhof, as well as publications about him and his work.

Switzerland

Dr. Maurice Arthus, formerly Professor of Physiology at the Faculty of Medicine in Lausanne and Director of the Institut de Bactériologie et d'Hygiène, died in Fribourg, Switzerland, in February 1945, at the age of 83. A translation of the preface to his famous book *De l'Anaphylaxie à l'Immunité* was published in this *Bulletin*, 1943, Vol. XIV, pp. 366-390, special reprints of which were made for the series of *Medical Classics* of the Johns Hopkins Institute of the History of Medicine.

ERRATA

Through the courtesy of Dr. Henry R. Viets we would like to point out the following errors in the June, 1945, issue of this *Bulletin*:

p. 1, 4th line under title:—read (8. 12. 1943) instead of (8. 12. 44)

p. 107, footnote 4:—read Everard for Everhard.

p. 108, line 2:—read ăngĭna for ăngĭna.

IMPRESSIONS OF MEDICAL CONDITIONS IN BESIEGED CHINA. Part III of *The Experiments of Nature and Other Essays*, by Irvine McQuarrie, Ph. D., M. D. Lawrence: Extension Division, University of Kansas, 1944. 115 pp., plates. $1.00.

In this essay Dr. McQuarrie has given more than his title promises. His "impressions" are in reality a well-rounded picture of health conditions in China and an indication of the aggravating effects of the Japanese occupation. The author, who was visiting pediatrician at Peiping Union Medical College in 1939-1940, is quite aware that the exceedingly low standard of health in China is the result of the lack of physicians and trained personnel, the low economic standard of living, and, last but not least, a strong adherence to ancient superstitious medical practices. In order to emphasize the appalling shortage of physicians and the high infant and maternal death rate, he gives comparative statistics for Minnesota and the First Health District of Peiping (one of the few districts in China which have been surveyed). The general lack of medical enlightenment helps the old style practitioners—who cure by means of herbs, animal drugs, and acupuncture—to maintain their often pernicious hold upon most of the rural population.

Dr. McQuarrie believes that "superstition, rigid social training and empiricism" have dominated China for so many centuries that it will take skill and diplomacy to make the archaic doctors relinquish their hold and to induce the population to accept the Western style of medicine. It seems to this reviewer that this transition from indigenous to modern Western medicine in China might be greatly facilitated by an Institute of the History of Medicine, as was recently advocated for India by Dr. Henry Sigerist.

After his general introduction Dr. McQuarrie proceeds to discuss specific diseases which are widespread in China. Deficiency diseases—always prevalent in China—were greatly aggravated by the Japanese occupation. Want of protein, of the vitamins D and A, lowered the general resistance to infection, while calcium deficiency frequently caused congenital and adult rickets. Incidence of tuberculosis and syphilis multiplied vastly during the years of the siege. Production and sale of opiates were fostered by the forces of occupation who thus followed the double purpose of further weakening the resistance of the besieged nation and of collecting enormous revenues. Fly- and lice-borne diseases increased with mounting poverty and crowding. Strangely enough, typhus in China runs a mild course, especially in children, while it is very severe among white foreign adults. Among the most serious health problems in China Dr. McQuarrie lists diseases of the eye with frequent incidence of trachoma. Prayer and acupuncture of the diseased eye constitute, in most cases, the only, and almost invariably fatal, treatment.

By closing such health centers as the Peiping Union Medical College, the Japanese cut down the possibility for effective immediate help while, at the same time, disrupting the training of additional Chinese medical personnel. Only when this training is resumed and many new facilities for medical and hygienic education have been created can China's health be improved. One cannot help feeling, however, that China's health cannot greatly improve unless the diet of the majority of China's population can be raised from its substandard level.

ILZA VEITH.

THOMAS E. KEYES. *The History of Surgical Anesthesia.* New York: Schuman's, 1945. xxx + 191 pp., illustrated. $6.00.

This very timely book by Thomas E. Keyes, Officer in Charge of the Cleveland Branch, Army Medical Library, is the most scholarly work on the history of anesthesia which has yet appeared. The author has traced the development of anesthesia from the early beginnings down to the latest agents and techniques. Very wisely, the ether controversy has been passed over in silence. Henry Hill Hickman is given due recognition in the list of pioneers from Priestley to Morton. Crawford Long is placed in proper perspective. We learn that he was preceded in the use of ether anesthesia by William E. Clarke of Rochester, New York, who administered the drug in January, 1842.

The contributions of Wells, Jackson and Morton are briefly assessed in a fair and non-partisan manner. Perhaps the approaching centennial year will be devoted to the celebration of the successful introduction of surgical anesthesia and not to partisan bickerings about questions of priority.

Dr. Chauncey D. Leake contributes an introductory essay to the volume which contains personal notes on anesthesiology of important historical interest. Noel A. Gillespie contributes a concluding chapter entitled the Future of Anesthesia. The Appendix contains an excellent study of the Morton and Warren Tracts on Ether (Letheon) by John F. Fulton.

Part II is a useful Chronology of Events relating to Anesthesiology and Allied Subjects followed by the sources for the same. Part III is Selected References for a History of Surgical Anesthesia Arranged by Subject while Part IV contains Collected References Arranged by Author. These should prove extremely valuable aids to all future workers in the field.

The Lantham Mitchell mentioned in the text and in the index is undoubtedly the famous Dr. Samuel Latham Mitchill of New York.

One regrets that anesthesia is spelled in two different ways on the title page, as well as in the text.

The publisher and the printer are to be congratulated for producing a finely printed volume, on good paper, which is easy to read and handle. The illustrations are excellent.

CLAUDE EDWIN HEATON.

HOWARD RILEY RAPER. *Man against Pain: The Epic of Anesthesia.* New York: Prentice-Hall, Inc., 1945. vii + 337 pp., illustrated. $3.50.

The decade between 1940 and 1950 is bound to be filled with celebrations and books commemorating the discovery of anesthesia. Regardless of who is credited with the discovery, it is safe to claim that by the middle of the 1940's anesthesia is one hundred years old. Unfortunately, however, the majority of books which have been written so far in honor of this great occasion have not been contributions to clarifying a very confused and most unfortunate situation. Dr. Raper's book is an excellent attempt to rectify this.

Like many other great discoveries utilized by medicine, that of the discovery of anesthesia was made, to a great extent, outside of what could strictly be termed

the medical profession. From the very beginning, dentists have shared in the advance of anesthesia. Therefore, it is very fitting that Dr. Raper, a dentist, should produce a book about a subject that seems to the layman at first glance mainly to be a medical subject.

Dr. Raper's book can be recommended on three counts: its accuracy, its fairness, and its style. *Man against Pain* shows that it is the product of good research. Compared to other authorative books it shows thoughtful selection of the facts, and can stand with the best of them as an accurate account.

Undeniably Dr. Raper has done a favor in his emphasis on and study of the nearly hundred year old controversy over who should be credited with the discovery of anesthesia. Although many writers, at this point, make it a small part of a book on anesthesia thus avoiding as far as possible a difficult situation, it is a welcome sign to find that Dr. Raper has worked to present the facts fairly and bring about a logical conclusion. Likewise that his deductions are to the disinterested bystander both just and logical would seem to settle a century old dispute in the minds of most who will read the book. That the states involved in forwarding their candidates and the individual descendants and interested partisans of one cause or another will simply find this additional fuel for the fire is also undeniable. Logically, the fact that Dr. Crawford Long did not bring forth his discovery to the world is reason enough to discard his claims. No unpublished discovery is of value and there can be no justification in the various arguments that are used to excuse this fact. It would seem very fair to claim Wells as the originator of the idea and Morton as the active agent that brought it to the world. Of course, the Wells and Mortonites could still argue the relative merits of this. For the majority, however, Dr. Raper has done a service in his careful survey of the material concerning the dispute and in the conclusions he has drawn from it.

The style of Dr. Raper's book can be used as an argument both for and against the book. The book as a whole is probably too elemental to be of prime interest to professional anesthetists or doctors. There are other books that more than adequately fill this need. For the medical historian also there might be other accounts that would be more satisfying. The book occasionally borders on the flippant and this for a serious researcher is not always greatly liked. However, I choose to think that this style is not against the book but on the contrary an asset. There are excellent textbooks for the doctor and there are some good accounts of the history of anesthesia for the medical historian. This is the book for the layman, and as such there is none better. It is very foolish to think that anybody could write a book on a technical subject that would please everyone. It is much better to write and please one class of reader. Dr. Raper has made his book a very interesting and amusing account that would fascinate the average reader while he learned a great deal about one phase of medical history and medical technique. It has the virtue of sounding like a better than average movie short commentary and still being accurate.

The dust jacket on Dr. Raper's book, naturally, praises his endeavor. In this, it is not wrong.

GWYNNETH A. GMINDER.

F. J. Cole. *A History of Comparative Anatomy from Aristotle to the Eighteenth Century.* Macmillan & Co. Ltd., London, 1944. viii + 524 pp., 200 figs.

It is a rare event indeed to have an entire volume devoted to the history of comparative anatomy. When it is the product of a distinguished scholar and authority on the history of science, the publication then assumes an outstanding importance. Professor Cole originally had planned to write a book on "the merits and concerns of the little masters of comparative anatomy, whose memoirs have been almost completely forgotten, and appear to be unknown even to those who write on the history of zoology." The exigencies of war, however, forced him to reconsider his task and to write instead the present volume treating of the history of comparative anatomy up to the eighteenth century. Let it be said at once that this is a scholarly, critical work, indispensable to anyone interested in the history of biology. The author consistently has gone back to primary sources, and the 200 illustrations taken from original texts uniformly are excellent and pertinent.

The scope of the treatise can best be indicated by listing its chapters: Introduction (First Statements of the Comparative Method); I. The Contribution of Greece (Aristotle, Galen); II. Zootomy down to the Sixteenth Century (The Scholastic Period, Leonardo da Vinci, Vesalius, Belon, Rondelet); III. The Development of Craftsmanship (Coiter, Ruini, Fabricius, Casserius); IV. Harvey. The Encyclopaedists (Harvey, Severino, Blasius, Collins, Valentini); V. The New Comparative Anatomy (Malpighi, Tyson, Willis, Martin Lister, Grew); VI. The Dutch School (Leeuwenhoek, Swammerdam, Ruysch); VII. Academies and Societies: the Anatomy Lesson (Collective Research, The Royal Society, Private College of Amsterdam, Academia Naturae Curiosorum, Acta Medica Hafniensia, L'Academie Royale des Sciences); VIII. The Anatomical Museum (Foundation of Museums, Preservation of Specimens in Spirit, European Museums (1528-1850), Medieval, Ruysch's and the Hunterian Museums compared); and Conclusion. Students will be in debt to the author for his accounts of those groups devoted to collective research, the Royal Society of London, the Private College of Amsterdam, the German Academia Naturae Curiosorum, the Medical College of Copenhagen, and the "Parisians" of L'Academie Royale des Sciences, and of the early anatomical museums. These are institutions usually neglected in histories of biology, although they exerted a great influence upon its development.

The author of this book points out that there have been two distinct approaches to the study of comparative anatomy. Many of the older anatomists—among them Vesalius, Glisson, Collins, Bartholin, Sloane, Monro *primus*, and Haller—carried out comparative investigations primarily for the light which they would cast upon human structure. This attitude was not peculiar to their times, however, for even to-day there are many biologists who would restrict the legitimacy of comparative studies to this narrow scope. On the other hand, men like Belon, Harvey, Malpighi, Swammerdam, Grew, Tyson, and Perrault, who made comparative studies for their own sake, were the real founders of comparative anatomy as a true science. Indeed, a remarkable exposition of the true comparative method was given as early as 1555 by Pierre Belon in his classic comparison of the skeletons of bird and man.

Professor Cole admits that there can be a comparative anatomy without cognition of evolution. He believes, however, that the demonstration of the evolutionary

principle of descent was the real factor in its maturation as a true science. For "the publication of the *Origin* [*of Species*] put an end to centuries of stagnation, and translated the study of anatomy to a philosophical plane not otherwise attainable." This contention undoubtedly is true, for acceptance of the doctrine of evolution gave a tremendous impetus and a new outlook to comparative anatomy and served to integrate many hitherto isolated facts. But, in the opinion of the reviewer, it may be doubted whether this stimulus has continued to be wholly beneficial and whether it still holds promise for the future of comparative anatomy. For it now serves to focus and restrict the thoughts and energies of comparative anatomists upon the gathering of morphological evidences of evolution and the construction of special phylogenies, an attitude that has largely resulted in an insulation of this science from the influence of other, legitimately related fields of biology, such as genetics, physiology and experimental embryology.

Perhaps it was no mere chance that the overconcentration of comparative anatomists upon descriptive evolutionary considerations should have been coincident with the separation of physiology from anatomy, a cleavage that left comparative anatomy especially vulnerable to influences that eventually have exposed it to stagnation. It is a strange paradox that the establishment of the evolutionary doctrine, so important as a broad philosophical principle and originally so stimulating for comparative anatomy, should finally have contributed to the latter's decay. Perhaps emerging tendencies towards a breaking down of the borders between anatomy, physiology and chemistry may lead to its rejuvenation. Certainly, a pursuance of traditional paths appears to offer no real hope for the future. Comparative anatomy, to survive with self-respect, will have to become other than a synonym for comparative descriptive morphology. This it can accomplish by expanding its point of view and its methods and so become a true comparative biology as in its classical days. It is only logical that comparative anatomy should be the leader in the development of such a science, for it alone is possessed of the necessary basic comparative point of view. Something comparable has occurred in the study of evolution. Once practically synonymous with comparative morphology and paleontology, its scope has expanded to the consideration of data gathered by genetics, experimental embryology and other fields, this with wholly beneficial results (see, e.g., J. Huxley, *Evolution, the Modern Synthesis*, 1942, and G. G. Simpson, *Tempo and Mode in Evolution*, 1944). As a matter of fact, recourse to physiological procedure, for example, would be no novelty in the history of comparative anatomy, for most of the older workers—such as Galen, Harvey, Malpighi, and Swammerdam—also were experimentalists. As D'Arcy Thompson (*On Growth and Form*, new edition, 1942) recently has emphasized, comparative anatomy has its physiological side as well as its classificatory and phylogenetic side, and "we can lose sight of neither aspect without risk of error and misconception." Edward Tyson (1651-1708), John Hunter (1728-1793) and Richard Owen (1804-1892) all were outstanding exponents of the former aspect, and though methods have changed and concepts altered, their points of view frequently are modern and fundamentally pertinent. Thus, after reading Tyson's *A Preliminary Discourse concerning Anatomy, and a Natural History of Animals* (1680) one may well consider, to quote Ashley Montagu (*Edward Tyson, M.D., F.R.S. 1650-1708 and the Rise of Human and Comparative Anatomy in England*, 1943),

" whether he has ever read a clearer or a better statement of the aims and purposes of the systematic and experimental biologist."

The present volume is not primarily a history of ideas in comparative anatomy, as is E. S. Russell's *Form and Function* (1916). Instead, it is an account of precise discoveries and their interpretation. This, for all of Professor Cole's scholarly treatment, frequently makes for difficult reading; and the detailed, meticulous renderings of anatomical minutiae, although highly valuable as sources for those who lack access to the original works, can be of but little interest to other than the specialist. All of which frequently will tend to make the book heavy going for those who are not extremely well grounded in comparative anatomy. The currents of comparative anatomical thought are not always evident, with the result that the individual sections of the book at times tend to appear unconnected. The wisdom of relegating the biographical details to an appendix may be questioned. In the few places where such information is introduced into the text—as are the relations of Swammerdam to Antoinette Bourignon—an understanding of the man's work and viewpoint is greatly enhanced. The space devoted to the various workers is rather arbitrarily distributed. Thus Samuel Collins, the "justly neglected author" of the *Systeme of Anatomy* (1685), and Martin Lister, both of whom are essentially minor figures in the history of comparative anatomy, are alloted 19 and 14 pages, respectively, whereas Galen and Harvey receive only 6 apiece and Coiter merely 11. This perhaps can be explained on the basis of Professor Cole's avowed affection for the "little masters," but it makes for a certain unevenness and distortion.

Any defects of this book, however, are entirely minor in nature. They are far overshadowed by its outstanding merits as a real contribution to the history of science. That such a work could have been produced in wartime Britain is more than a tribute to its author. One can only hope that Professor Cole will see fit to carry the story up to modern times. The reviewer, for one, could anticipate only with pleasure his treatment of the great figures of comparative anatomy in the eighteenth and nineteenth centuries.

WILLIAM L. STRAUS, JR.

MARCEL FLORKIN. *Léon Fredericq et les débuts de la physiologie en Belgique.* Bruxelles: Office de Publicité, 1943. 103 pp., 3 ill., 3 fig.

Léon Fredericq was borne in 1851 at Ghent and died at Liége in 1935, where, succeeding Th. Schwann, he had held the chair of physiology since 1880. The Belgians rightly venerate Fredericq (together with Paul Heger) as the first to have established modern physiology in Belgium, and as the first Belgian to make contributions of international significance in the field. Fredericq obtained his education from the French and German masters of his discipline: Hoppe-Seyler, Marey, Paul Bert. He was in close contact with all leading physiologists of his time. This study of his life and work is thus a valuable contribution to the history of physiology in the last quarter of the 19th century. Prof. Florkin, in giving much attention to Fredericq's ancestry which from the father's side links him to the Flemish literary renaissance, from the mother's side to French liberalism, provides

a wealth of information of general historical interest. Though the author is sometimes inclined to stress a little the scientific importance of his hero, he is substantially correct. Fredericq was an important figure indeed. He had the privilege of living in a period, where it was still far easier to make original contributions. Prof. Florkin's study is well written, and nobody can read it without interest and a certain feeling of nostalgia.

ERWIN H. ACKERKNECHT.

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THE FALLING SICKNESS

A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology

By Owsei Temkin

Oliver Wendell Holmes once wrote: "If I wished to show a student the difficulties of getting at truth from medical experience, I would give him the history of epilepsy to read." Such a history, however, if written from one arbitrary point of view, might easily be misleading rather than enlightening. This being the case, there seems but one way left. We must above all find out what was meant by epilepsy, what symptoms were attributed to it, how it was explained and how treated. This means we must take the past seriously and try to understand it. And this implies that we must study the opinions of laymen, philosophers and theologians, as well as those of physicians. For this reason the popular name, "the falling sickness," known to every reader of Shakespeare's "Julius Caesar," seemed an appropriate title for this book.

The book begins with the ancient Greeks who have left us the earliest western writing on epilepsy, and it continues to the point where the historical perspective ends and the present debate begins. This point seems to lie about the year 1880, when the impact of Jackson's and Charcot's work made itself felt. Hughlings Jackson outlined a neurological theory of epilepsy, while Charcot, on the other hand, separated epilepsy and hysteria more emphatically than any of his predecessors had done. Both men confined epilepsy to the realm of neurology, thereby dissolving the vague but more comprehensive concept of "the falling sickness." This separation was not the final word, but it impressed itself strongly upon the mind of a generation. For a book on "the falling sickness," this seemed the proper place to stop.

After what has been said, it will become understandable why this book, though medical in intent, has to deal with many cultural aspects of epilepsy. Its aim throughout is to understand the past in order to help to understand the setting of present problems, and to show that our views of epilepsy have emerged as the result of complicated religious, philosophical, social as well as strictly medical developments.

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